

MAINVIEW® SRM StorageGUARD User Guide and Reference

Version 6.1

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BMC Software, Inc.
2101 CityWest Blvd.
Houston TX 77042-2827
USA

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USA and Canada

Address BMC Software, Inc.
2101 CityWest Blvd.
Houston TX 77042-2827

Telephone 713 918 8800 or
800 841 2031

Fax 713 918 8000

Outside USA and Canada

Telephone (01) 713 918 8800

Fax (01) 713 918 8000

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 - product version (release number)
 - license number and password (trial or permanent)
- operating-system and environment information
 - machine type
 - operating system type, version, and service pack or program temporary fix (PTF)
 - system hardware configuration
 - serial numbers
 - related software (database, application, and communication) including type, version, and service pack or PTF
- sequence of events leading to the problem
- commands and options that you used
- messages received (and the time and date that you received them)
 - product error messages
 - messages from the operating system, such as `file system full`
 - messages from related software

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About This Book

This book contains detailed information about the MAINVIEW® Storage Resource Manager StorageGUARD product by BMC Software (formerly known as RESOLVE SRM StorageGUARD) and is intended for storage administrators.

To use this book, you should be familiar with the following items:

- MAINVIEW SRM operations (see the *MAINVIEW SRM User Guide and Reference*)
- OS/390 operating system, job control language (JCL), and the Interactive System Productivity Facility (ISPF)

How This Book Is Organized

This book is organized as follows. In addition, an index and glossary appear at the end of the book.

| Chapter/Appendix | Description |
|--|--|
| Chapter 1, "Introduction to StorageGUARD" | provides an overall product description of StorageGUARD |
| Chapter 2, "StorageGUARD Functions" | explains how to start historical performance data collection and describes the functions available for use |
| Chapter 3, "Real Time Storage Performance Monitor" | describes the DASD Performance reports and how they work |
| Chapter 4, "Real Time RAID Configurations" | describes how to generate reports that assist you in reporting and viewing RAID hardware-specific information |
| Chapter 5, "Historical Space Data" | <ul style="list-style-type: none">• provides information about using the StorageGUARD space data collector• describes how to use historical space views |

| Chapter/Appendix | Description |
|--|---|
| Chapter 6, "Historical Performance Data" | <ul style="list-style-type: none">• provides a reference for SMF and CMF/RMF parameters, optional system parameters for historical performance data collection, and a database calculator for estimating the historical performance database• describes how to use historical performance views that assist you in determining the current use and growth of performance in your data center |
| Chapter 7, "Workbench" | describes how to use views that can assist you with daily housekeeping of your DASD environment |
| Appendix A, "Copy/Merge Utility" | provides a utility program to convert the StorageGUARD database to the current version |

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BMC Software products are supported by several types of documentation:

- online and printed books
- online Help
- release notes and other notices

In addition to this book and the online Help, you can find useful information in the publications listed in the following table. These publications are available on request from BMC Software.

| Category | Document | Description |
|--------------------------------------|---|--|
| MAINVIEW common documents | <i>OS/390 and z/OS Installer Guide</i> <i>MAINVIEW Installation Requirements Guide</i> <i>MAINVIEW Common Customization Guide</i> <i>Using MAINVIEW</i> <i>MAINVIEW Administration Guide</i> <i>Implementing Security for MAINVIEW</i> | provide instructions for installing, configuring, using, and administering MAINVIEW |
| MAINVIEW SRM customization documents | <i>MAINVIEW SRM Customization Guide</i> | provides instructions for configuring and customizing MAINVIEW SRM for OS/390 including StorageGUARD |
| core documents | <i>MAINVIEW SRM User Guide and Reference</i> | provides information common to all MAINVIEW SRM products and high-level navigation |
| | <i>MAINVIEW SRM Reference Summary</i> | provides a reference of global parameters, filter list and rule list parameters, and functions |
| supplemental documents | release notes, flashes, technical bulletins | provides additional information about the product |

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Conventions

This section provides examples of the conventions used in this book and explains how to read ISPF panel-flow diagrams and syntax statements.

General Conventions

This book uses the following general conventions:

| Item | Example |
|---|--|
| information that you are instructed to type | Type SEARCH DB in the designated field. |
| specific (standard) keyboard key names | Press Enter . |
| field names, text on a panel | Type the appropriate entry in the Command field. |
| directories, file names, Web addresses | The BMC Software home page is at www.bmc.com . |
| nonspecific key names, option names | Use the HELP function key. KEEPDICTIONARY option |
| calls, commands, control statements, keywords, parameters, reserved words | Use the SEARCH command to find a particular object. The product generates the SQL TABLE statement next. |
| code examples, syntax statements, system messages, screen text | //STEPLIB DD The table <i>table_name</i> is not available. |
| emphasized words, new terms, variables | The instructions that you give to the software are called <i>commands</i> . In this message, the variable <i>file_name</i> represents the file that caused the error. |
| single-step procedures | >> To enable incremental backups, type y and press Enter at the next prompt. |

This book uses the following types of special text:

Note: Notes contain important information that you should consider.

Warning! Warnings alert you to situations that could cause problems, such as loss of data, if you do not follow instructions carefully.

Tip: Tips contain useful information that may improve product performance or that may make procedures easier to follow.

Syntax Statements

Syntax statements appear in the Courier typeface. The following example shows a sample syntax statement:

```
COMMAND KEYWORD1 [KEYWORD2|KEYWORD3] KEYWORD4={YES|NO}  
file_name...
```

The following table explains conventions for syntax statements and provides examples:

| Item | Example |
|--|---|
| Items in italic type represent variables that you must replace with a name or value. | dtbackup <i>control_directory</i> |
| Brackets indicate a group of options. You can choose at least one of the items in the group, but none of them is required. Do not type the brackets when you enter the option. A comma means that you can choose one or more of the listed options. You must use a comma to separate the options if you choose more than one option. | [<i>table_name, column_name, field</i>] |
| Braces enclose a list of required items. You must enter at least one of the items. Do not type the braces when you enter the item. | { <i>DBD_name table_name</i> } |
| A vertical bar means that you can choose only one of the listed items. In the example, you would choose either <i>commit</i> or <i>cancel</i> . | {commit cancel} |
| An ellipsis indicates that you can repeat the previous item or items as many times as necessary. | <i>column_name . . .</i> |

Chapter 1 Introduction to StorageGUARD

This chapter provides a high-level overview of the BMC Software MAINVIEW SRM StorageGUARD product. The following information is included:

| | |
|---|-----|
| Overview | 1-1 |
| StorageGUARD Data Collectors | 1-2 |
| Historical Space Data Collector | 1-3 |
| Historical Performance Data Collector | 1-3 |
| Storage Performance Monitoring | 1-4 |
| RAID Configuration Monitoring | 1-5 |
| StorageGUARD Workbench | 1-5 |

Overview

StorageGUARD is a component product of MAINVIEW SRM. For a description of the interface and system navigation instructions, refer to the *MAINVIEW SRM User Guide and Reference*. If you are migrating from a previous release of StorageGUARD, see the *MAINVIEW SRM Customization Guide* (if you have not already done so).

To plan and forecast DASD utilization, you first must know how your existing DASD environment is being used and how it is performing over time. To do so, you must collect, display, automate, manage, and report on relevant DASD information.

StorageGUARD monitors and reports on DASD consumption and allows you to dynamically control DASD utilization. Views enable the DASD administrator to review historic DASD usage and control current and future DASD usage. Physical views of storage devices can be supplemented with user-defined application views by the MAINVIEW SRM SG-Control product, allowing for budgeting and measurement by logical groups. the MAINVIEW SRM SG-Auto product provides an automation facility that monitors utilization and fragmentation, drives an unlimited series of corrective actions, and supports user customization.

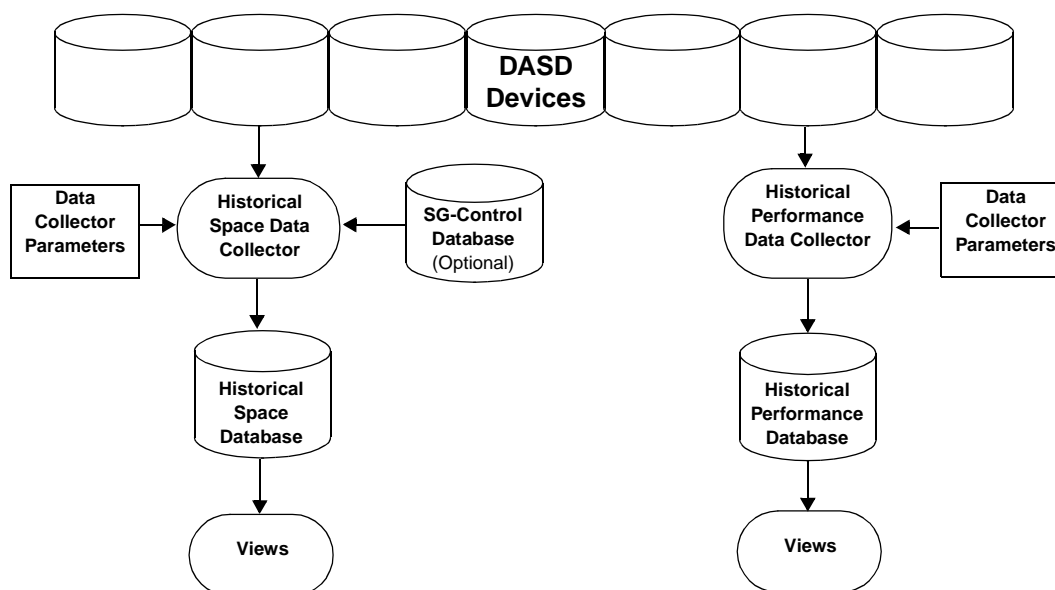
StorageGUARD also provides for the collection of historical performance information. You control the collection of data set-level information.

StorageGUARD Data Collectors

StorageGUARD is equipped with two data collectors: *historical space* and *historical performance*.

Figure 1-1 on page 1-2 provides an overview of the StorageGUARD data flow process, showing the relationship between the historical space and historical performance data collectors.

Figure 1-1 StorageGUARD Data Collector Process Flow



Historical Space Data Collector

Historical space views are updated automatically at user-defined intervals (called snapshots). The historical space data collector writes the snapshot to a linear data set that maintains storage utilization information by volume, pool, and application. The period for which information is available is determined by the frequency of the snapshot as well as the size of the StorageGUARD database. If SG-Control is installed and active, application-level information can be extracted from the SG-Control database. Table 1-1 provides a quick reference to historical space views.

Table 1-1 Historical Space View Summary

| To view... | Go to... | Page |
|---|--------------------|--------------|
| a list of interval snapshots and links to summarized and other views for DASD devices | SPSNAP | 5-10 |
| pool-level space usage information | SPPOOL | 5-12 |
| RAID device usage information | SPRAID SPRAIDVO | 5-15 5-17 |
| application-level space usage information | SPAPPL | 5-20 |
| volume-level space usage information | SPVOL | 5-23 |

Historical Performance Data Collector

The historical performance data collector extracts information from sources such as SMF, RMF, or CMF MONITOR and combines it with additional information on the current status of a volume. The historical performance collector can store data in a maximum of 100 databases before old data is overwritten. There is never more than one *active* historical performance database, but at startup, previously collected data from all databases can be accessed.

Historical performance views are updated automatically at user-defined intervals (called snapshots). Information is provided for activity for devices, I/O queuing, and channels and contention by enqueue and reserves.

Table 1-2 provides a quick reference to historical performance views.

Table 1-2 Historical Performance View Summary

| To view... | Go to... | Page |
|--|----------|------|
| summarized performance history information by time for historical data | PRSSUM | 6-9 |
| all the interval reports on the database | PRINTV | 6-11 |

Table 1-2 Historical Performance View Summary

| To view... | Go to... | Page |
|---|----------|------|
| a selected channel path record for a specific date and time | PRCHP | 6-12 |
| a selected cache controller record for a specific date and time | PRCCU | 6-15 |
| a selected logical control unit record for a specific date and time | PRLCU | 6-19 |
| a selected pool record for a specific date and time | PRPOOL | 6-23 |
| a selected volume record for a specific date and time | PRVOL | 6-26 |
| a selected storage class record for a specific date and time | PRSCL | 6-30 |
| a selected data set record for a specific date and time | PRDS | 6-32 |
| a selected job record for a specific date and time | PRJOB | 6-36 |

Views enable you to drill down to the data set level, obtain extensive details, or view historical information.

Storage Performance Monitoring

StorageGUARD provides a unique perspective on DASD-related performance information. Views show DASD device, channel, and I/O queuing activity.

Table 1-3 provides a quick reference to real-time storage performance views.

Table 1-3 Storage Performance View Summary

| To monitor the... | Go to... | Page |
|---|----------|------|
| volume status, SMS status, mount status, and paging indicators | MDEV | 3-4 |
| percentage-busy statistics of the channel (both numerically and graphically) and to examine channels with large continuous amounts of busy time for possible performance degradation problems | MCHAN | 3-5 |
| performance throughput of your I/O subsystem and to get help in determining I/O queuing bottlenecks in your DASD I/O configuration | MIOQ | 3-6 |
| outstanding RESERVE requests against the serially reusable resources in the system | MRES | 3-7 |
| contention that exists for all serially reusable resources in your system | MENQ | 3-7 |

RAID Configuration Monitoring

Vendor-specific RAID configuration views use vendor-supplied APIs (as available) and provide information that is critical to the optimization of these devices. For example, StorageGUARD maps logical volumes to physical volumes, providing critical information for solving common problems with many RAID devices. Hardware configuration and performance characteristics are also reported.

Support is provided for

- EMC Symmetrix Integrated Cache Disk Array (ICDA)
- IBM® RAMAC, RAMAC Virtual Array (RVA)
- IBM Enterprise Storage Server (ESS)

Table 1-4 provides a quick reference to RAID configuration views.

Table 1-4 RAID Configuration View Summary

| To monitor the... | Go to... | Page |
|--|----------|------|
| hardware configuration and performance characteristics of Symmetrix 5000 RAID subsystems | REBOX | 4-4 |
| racks accessed by the current OS/390 system | RIBOX | 4-6 |

From each of these views, you can drill down to specific information about each device type.

StorageGUARD Workbench

The MAINVIEW SRM Workbench provides a set of real-time data set-level and VTOC-level reports to simplify the following daily DASD housekeeping functions:

- HLQ (High-Level Qualifier)
- Catalog Super Locate
- VTOC Scan Facility

A powerful search engine drives this component and uses the tabular display facility. With these reports and utilities, you can locate problem data sets and take action if necessary. You can inspect data sets from the catalog and VTOC viewpoints.

Table 1-4 provides a quick reference to RAID configuration views.

Table 1-5 Workbench View Summary

| To... | Go to... | Page |
|---|-----------------|-------------|
| see a top-down view of high-level qualifiers in the catalog | WBHLQ | 7-4 |
| zoom in on a specified high-level qualifier | WBSL | 7-5 |
| scans all the VTOCs to find duplicate and non-cataloged data sets | WBVTOC | 7-8 |

Catalog Super Locate and VTOC views have action commands that allow you to manage data sets actively, as needed.

Online view customization enables you to move, mask or filter, scroll left and right, sort, rearrange columns, export data, and generate printed reports of the data. Selection criteria can be customized for displays.

Chapter 2 StorageGUARD Functions

This chapter describes the functions that StorageGUARD uses for collecting historical space and performance data. The following information is included:

| | |
|---------------------------------|-----|
| Overview | 2-1 |
| Rule List Parameters | 2-2 |
| Function Descriptions | 2-3 |

Overview

In MAINVIEW SRM StorageGUARD, storage management services are divided into functions. Functions provide all the runtime services for MAINVIEW SRM. Functions are defined in the SMFUNCxx parmlib member. SMFUNCxx is read by MAINVIEW SRM during system start up. The suffix specification in the SMMSYSxx member indicates which version of SMFUNCxx contains function specifications for the particular configuration of MAINVIEW SRM that is being executed.

SMFUNCxx points to members SMFLSTxx and SMRLSTxx, which select resources and control the operation of the functions. SMFUNCxx is a required member, and StorageGUARD does nothing without defined function parameters. For more information about system and function definition, see the *MAINVIEW SRM User Guide and Reference*.

Rule List Parameters

The only rule list parameter available to StorageGUARD functions is `EVENTID=xxxx`. You can use the `EVENTID` parameter if you are licensed for the MAINVIEW SRM Enterprise Storage Automation product.

With Enterprise Storage Automation, storage occurrences are defined to generate events in the form of messages. These events provide an early warning system for storage problems and are routed to user-specified destinations for central viewing and management. For more information see the *MAINVIEW SRM Enterprise Storage Automation User Guide*.

`EVENTID=xxxx` is used to specify the identifier that is assigned to a user event in the `SMEVNTxx` parmlib member. This parameter causes an event to be generated from this function.

Function Descriptions

Table 2-1 provides a description StorageGUARD functions and lists valid rule and filter list parameters for each. Examples for many of the functions are shown following the table.

Table 2-1 StorageGUARD Functions

| Function | Description | Rule List Parameters | Filter List Parameters |
|----------|---|----------------------|--|
| SGDACCT | application utilization thresholds - allows events to be generated from thresholds on values in the group utilization record. | EVENTID | SGDA_ALNV SGDA_ALV SGDA_AVAIL SGDA_GRP SGDA_IDLE SGDA_NVDS SGDA_VDS |
| SGDPOOL | pool utilization thresholds - allows events to be generated from thresholds on values in the pool utilization record | EVENTID | SGDP_ALNV SGDP_ALV SGDP_AVAIL SGDP_IDLE SGDP_NCLPER SGDP_NNV SGDP_NV SGDP_NVOL SGDP_POOL SGDP_RSVD SGDP_RVAARC SGDP_RVAFNC SGDP_RVAFSC SGDP_RVAIND SGDP_RVANCL SGDP_TYPE SGDP_PERFUL |

Table 2-1 StorageGUARD Functions

| Function | Description | Rule List Parameters | Filter List Parameters |
|-----------------|--|-----------------------------|--|
| SGDVOL | volume utilization thresholds - allows events to be generated from thresholds on values in the volume utilization record | EVENTID | SGDV_ALREXT SGDV_FRAGI SGDV_FRCYL SGDV_FREXT SGDV_FRVIR SGDV_IDTR SGDV_LREXT SGDV_LREXTT SGDV_NDS SGDV_NF0DSC SGDV_POOL SGDV_POOL1 SGDV_PTyp SGDV_RSRVDT SGDV_RVAFDV SGDV_RVAIND SGDV_RVAPCS SGDV_RVAPCU SGDV_RVASSF SGDV_RVAVOL SGDV_USEXT SGDV_VOL SGDV_PERFUL |
| SGPCCURC | cache controller records - controls the inclusion or exclusion of the cache controller records | EVENTID | JOB SGP_CNTLUID SGP_IOPRSEC SGP_NRDHIT@ SGP_NRDPRSEC SGP_NWRHIT@ SGP_NWRTPSC SGP_RDHIT@ SGP_RDSRPRSC SGP_READ@ SGP_SRDHIT@ SGP_SRDPRSC SGP_SWRHIT@ SGP_SWRPRSC SGP_WRHIT@ SGP_WRITE@ SGP_WRPSEC |
| SGPCPREC | channel path records - controls the inclusion or exclusion of the channel path records members | EVENTID | JOB SGP_CHPID SGP_DP@BUSY SGP_IOPRSEC |

Table 2-1 StorageGUARD Functions

| Function | Description | Rule List Parameters | Filter List Parameters |
|----------|---|----------------------|---|
| SGPDSREC | data set records - controls the inclusion or exclusion of the data set records. | EVENTID | DSN DSTYPE JOB SGP_CONNTIM SGP_DISCTIM SGP_IOPRSEC SGP_IOSQTIM SGP_JOBCNT SGP_PENDTIM SGP_RDHIT@ SGP_READ@ SGP_RESPTIM SGP_SERVTIM SGP_WRHIT@ SGP_WRITE@ STORCLAS VOL |
| SGPFILTR | data set type filter - controls the inclusion or exclusion of the data set record based on the data set type SGPFILTR applies to all data sets. Filtering temporary data sets with SGPFILTR will give better performance than using the DSTYPE keyword in the SGPDSREC member. | EVENTID | DSN DSTYPE |
| SGPJBIRC | job records - controls the inclusion or exclusion of the job records | EVENTID | JOB SGP_CONNTIM SGP_DISCTIM SGP_IOPRSEC SGP_IOSQTIM SGP_PENDTIM SGP_RDHIT@ SGP_READ@ SGP_RESPTIM SGP_SERVTIM SGP_WRHIT@ SGP_WRITE@ |
| SGPLCURC | logical control unit records - controls the inclusion or exclusion of the logical control unit records | EVENTID | JOB SGP_DP@BUSY SGP_IOPRSEC SGP_LCUID SGP_LCU@BSY |
| SGPPSMRC | storage pool records - controls the inclusion or exclusion of the storage pool records. | EVENTID | JOB POOL SGP_ALLCSPC SGP_ALLOC@ SGP_IOPRSEC SGP_RESPTIM SGP_TOTSPAC |

Table 2-1 StorageGUARD Functions

| Function | Description | Rule List Parameters | Filter List Parameters |
|----------|---|----------------------|---|
| SGPRSFRC | <p>RVA subsystem frame record creation - controls processing for the IBM RAMAC Virtual Array (RVA) subsystem frame resource.</p> <p>To implement this functionality, you must first make JCL changes in the StorageGUARD space data collector. For information about setting up the space data collector, see ““Historical Space Data Collector” on page 5-1.</p> | EVENTID | SGP_BESCOLT SGP_BESFREE SGP_BESTOTL SGP_BESUNCL SGP_ECMCFBS SGP_ECMMSGGS SGP_ECMNSPC SGP_ECMPGMS SGP_FSCBYRD SGP_FSCPERC SGP_FSUPERC SGP_NCL SGP_NCLPERC SGP_RSFNAME |

Table 2-1 StorageGUARD Functions

| Function | Description | Rule List Parameters | Filter List Parameters |
|----------|---|----------------------|---|
| SGPSCSRC | storage class summary records - controls the inclusion or exclusion of the storage class summary records. | EVENTID=xxx xx | JOB SGP_CONNTIM SGP_DISCTIM SGP_DSNCNT SGP_IOPRSEC SGP_IOSQTIM SGP_PENDTIM SGP_RDHIT@ SGP_READ@ SGP_RESPTIM SGP_SERVTIM SGP_WRHIT@ SGP_WRITE@ STORCLAS |
| SGPVOLRC | volume records - controls the inclusion or exclusion of the volume records. | EVENTID=xxx xx | JOB SGP_@BUSY SGP_CFWHIT@ SGP_CFWPRSC SGP_CONNTIM SGP_CUBSYDL SGP_DFWHIT@ SGP_DFWPRSC SGP_DISCTIM SGP_DPBSYDL SGP_DSALLOC SGP_DVBSYDL SGP_IOPRSEC SGP_IOSQTIM SGP_NRDHIT@ SGP_NRDPRSC SGP_PENDTIM SGP_RDHIT@ SGP_READ@ SGP_RESERV@ SGP_RESPTIM SGP_SERVTIM SGP_SRDHIT@ SGP_SRDPRSC SGP_WRHIT@ SGP_WRITE@ STORGRP VOL |

Example

Use SGPCCURC to include only cache controllers in which the I/Os-per-second rate is greater than 10 or the read-hit percentage is less than 25.

```
SET  MODE=ACT
INC  SGP_IOPRSEC>10
INC  SGP_RDHIT@<25
```

Example

Use SGPCPREC to include only channel paths that are busy more than 25 percent of the time.

```
SET  MODE=ACT
INC  SGP_@BUSY>25
```

Example

Use SGPDSREC to exclude all data sets with a name that starts with SYSTEM and that reside on volume 111111.

```
SET  MODE=ACT
EXC  DSN=SYSTEM/ VOL=111111
```

Include only data sets that have an I/Os-per-second rate that is greater than 30 or a response time greater than 10 milliseconds.

```
SET  MODE ACT
INC  SGP_IOPRSEC>30
INC  SGP_RESPTIM>100
```

Note: The response time is stated in .1-millisecond units; therefore, 100 is 10 milliseconds.

Example

Use SGPFILTR to exclude all data sets whose name starts with SYSTEM and are GDGs.

```
SET  MODE=ACT
EXC  DSN=SYSTEM/ DSTYPE=GDG
```

Example

Use SGPJBIRC to exclude all jobs whose name starts with SMF and have I/Os-per-second rate is less than 20.

```
SET  MODE=ACT
EXC  JOB=SMF/ SGP_IOPRSEC<20
```

Example

Use SGPLCURC to include only LCUs whose director port is busy more than 25 percent of the time, or the LCU itself is busy more than 50 percent of the time.

```
SET  MODE=ACT
INC  SGP_DP@BUSY>25
INC  SGP_LCU@BSY>50
```

Example

Use SGPPSMRC to exclude all pools whose name starts with SAM and have I/Os-per-second rate is less than 20.

```
SET  MODE=ACT
EXC  POOL=SAM/SGP_IOPRSEC<20
```

Example

Use SGPSCLRC to exclude all storage classes whose name starts with CICS and have I/Os-per-second rate is less than 20.

```
SET  MODE=ACT
EXC  STORCLAS=CICS/ SGP_IOPRSEC<20
```

Example

Use SGPVOLRC to exclude all volumes whose serial starts with WRK, or volumes whose I/Os-per-second rate is less than 20.

```
SET  MODE=ACT
EXC  VOL=WRK/SGP_IOPRSEC<20
```

Chapter 3 Real Time Storage Performance Monitor

This chapter describes the real time storage performance monitor. The following information is included:

| | |
|---------------------------------------|-----|
| Overview..... | 3-1 |
| How Data Frequency Is Determined..... | 3-2 |
| Storage Performance Views | 3-3 |
| Device Activity Views | 3-4 |
| Channel Activity Views | 3-5 |
| I/O Queuing Activity Views..... | 3-6 |
| Enqueue/Reserve Activity Views..... | 3-7 |
| Enqueue Activity Views..... | 3-7 |

Overview

Storage Performance views provide performance information about DASD device, channel, and I/O subsystem activity. Performance views are based on the RMF/CMF API, with additional fields to indicate the current status of the volume.

Some performance information is based on the CMFMON product from BMC Software or the RMFMON II product from IBM. It is helpful to be familiar with these products to interpret this information.

How Data Frequency Is Determined

Data frequency is dependent on the collector. The performance statistics for the Device Activity and I/O Queuing Activity views are averaged over the length of the current CMF EXTRACTOR or RMFMON I recording interval. For example, if the interval is 4 minutes old, the statistics are averaged for the last 4 minutes. The actual statistics are recalculated each recording interval cycle. Typically, a recording interval cycle is 1 to 5 seconds, depending on how RMF or CMF is set up.

The Device Activity and I/O Queuing Activity view support the DELTA command that allows you to turn DELTA mode on or off. DELTA mode OFF (TOTAL MODE) is the default when you start the report. DELTA mode OFF indicates that StorageGUARD averages performance statistics for the entire recording level. DELTA mode ON indicates that StorageGUARD averages performance statistics for the number of recording interval cycles that have occurred since you pressed **Enter**. This gives you a much higher level of performance statistic granularity. With DELTA mode on, you can analyze specific volumes having short duration performance problems that might not be obvious when averaged over the life of an entire recording interval.

The Channel activity report calculates statistics by using DELTAs that have occurred since you pressed **Enter**. In essence, it runs only with DELTA mode on, so you should wait a few seconds before pressing **Enter**, especially if the channel does not show much activity.

Storage Performance Views

To access the storage performance monitor

» From the EZSRM Menu, select **Storage Performance**.

The Storage Performance pop-up menu is displayed, as shown in Figure 3-1.

Figure 3-1 Storage Performance Pop-up Menu

```

14MAY2001 10:58:50 ----- INFORMATION DISPLAY -----
COMMAND ==> SCROLL ==> PAGE
CURR WIN ==> 1 ALT WIN ==>
>W1 =EZSRM====EZSRMS====SJSG=====14MAY2001==10:25:35====MVSRM====D====1
EZSRM Menu

SRM Real Time Monitor SRM Historical Data
+ Storage Performance ==+
. Pools . Device Activity . > Historical Space
. SMS Storage Groups . Channel Activity . > Historical Performance
. SMS Pools . I/O Queueing . > EasyHSM
> RAID Configurations . ENQ/Reserve Activity. > SGControl Applications
> Storage Performance . ENQ Activity . > SMF Report Library
. Return... .
SRM Administration +-----+ SRM Tools and Menus
> Parmlib Members > Workbench
. Functions . MVSRM View List
. SRM Component Status . MVSRM Batch Reports
. MainView Messages
. Return....

```

Table 3-1 defines the available views. View invocation and actions are described on the following pages.

Tip: You can use the EZcmd menu to hyperlink to another view rather than the action line command. See the *MAINVIEW SRM User Guide* for details.

Power users can gain functionality by using *primary action commands*. Primary action commands are described in the online help. They appear in reverse video to indicate that you can hyperlink to a detailed description of the command that includes specific arguments used in the command.

Table 3-1 Storage Performance Views

| View | Description | View Name | Page |
|--------------------------|--|--|------|
| Device Activity | provides a listing of device activity and performance on a volume-by-volume basis | MDEV MDEV MDEVSUM MDEVSP MDEVSPD | 3-4 |
| Channel Activity | provides a listing of channel activity and performance for all online channels | MCHAN MCHAND MCHANSUM | 3-5 |
| I/O queuing Activity | provides a listing of all online LCUs and associated channels that have had activity during the current CMF/RMF recording interval | MIOQ MIOQD MIOQDS | 3-6 |
| Enqueue/Reserve Activity | displays all currently outstanding RESERVE requests that have been made against the serially reusable resources in your system | MRES MRES | 3-7 |
| Enqueue Activity | displays information on the contention that exists for all serially reusable resources in your system | MENQ MENQD | 3-7 |

Device Activity Views

When you select Device Activity from the Storage Performance popup menu, the Device Activity tabular (MDEV) view is displayed

The Device Activity tabular view provides a listing of device activity and performance on a volume-by-volume basis. View information includes volume status, SMS status, mount status, and paging indicators.

The detail view displays the selected volume record in vertical format.

The summary view displays device activity, summarized by device, for a single system (CON sysid) or for all systems in the sysplex (CON ALL).

| View Type | View Name | View Invocation |
|-----------|-----------|-----------------|
| Tabular | MDEV | MDEV |
| Detail | MDEV | MDEV |
| Summary | MDEVSUM | MDEVSUM |

You can also view specific device activity by volume and by device with the MDEVSP view. By selecting the MDEVSP view, you can collect several snapshots of how the device is operating on a single screen for comparison.

The MDEVSP view contains the same data as the MDEV view, except that each time you press **Enter**, a new row is added to the bottom of the display. This new row contains the current status of the volume with performance statistics.

| View Type | View Name | View Invocation |
|-----------|-----------|----------------------|
| Tabular | MDEVSP | MDEV volume device |
| Detail | MDEVSPD | MDEVSD volume device |

View Invocation Input

| Optional Input | | Valid Values | Default |
|----------------|----------------------|--|----------------------|
| Volume | volume serial number | volume serial number; if not specified, defaults to * and the Device field must be specified | * (All) ¹ |
| Device | unit device number | unit device number; if not specified, defaults to * and the Volume field must be specified | * (All) ¹ |

1 This view is invoked by passing the volume serial number or the device number, one of which is required.

No actions are available on these views.

Channel Activity Views

The Channel Activity tabular view lists channel activity and performance for all online channels. See “How Data Frequency Is Determined” on page 3-2 for information on how values are generated.

Channel Activity view displays the percentage of time that the channel is busy, both numerically and graphically. You should examine channels with continuous amounts of busy time should be examined for possible performance degradation problems.

The detail view displays the selected channel record in vertical format.

The summary view displays channel activity that is summarized by channel for a single system (CON sysid) or for all systems in the sysplex (CON ALL).

| View Type | View Name | View Invocation |
|-----------|-----------|-----------------|
| Tabular | MCHAN | MCHAN |
| Detail | MCHAND | MCHAND |
| Summary | MCHANSUM | MCHANSUM |

No actions are available on these views.

I/O Queuing Activity Views

The I/O Queuing Activity tabular view provides a listing of all online LCUs. This view assists you in determining I/O queuing bottlenecks in your DASD/IO configuration.

The detail view displays the selected device record in vertical format.

The summary view displays summarized I/O queuing activity for a single system (CON sysid) or for all systems in the sysplex (CON ALL).

| View Type | View Name | View Invocation |
|-----------|-----------|-----------------|
| Tabular | MIOQ | MIOQ |
| Detail | MIOQD | MIOQD |
| Summary | MIOQDS | MIOQDS |

No actions are available on these views.

Enqueue/Reserve Activity Views

The Enqueue/Reserve Activity tabular view displays all currently outstanding RESERVE requests that have been made against the serially reusable resources in your system. You can use this view to show resource control contention.

The detail view displays the selected device record in vertical format.

| View Type | View Name | View Invocation |
|-----------|-----------|-----------------|
| Tabular | MRES | MRES |
| Detail | MRESD | MRESD |

No actions are available on these views.

Enqueue Activity Views

The Enqueue Activity tabular view displays information on the contention that exists for all serially reusable resources in your system. You can use this view to show resource control contention.

The detail view displays the selected device record in vertical format.

| View Type | View Name | View Invocation |
|-----------|-----------|-----------------|
| Tabular | MENQ | MENQ |
| Detail | MENQD | MENQD |

No actions are available on these views.

Chapter 4 Real Time RAID Configurations

This chapter describes the real time RAID configuration views. The following information is included:

| | |
|---------------------------------|-----|
| Overview | 4-1 |
| EMC Symmetrix Views | 4-4 |
| IBM RVA/Shark/RAMAC Views | 4-6 |

Overview

Vendor-specific RAID configuration views use vendor-supplied APIs (as available) and provide information that is critical to the optimization of these devices. For example, StorageGUARD maps logical volumes to physical volumes, providing critical information for solving common problems with many RAID devices. Hardware configuration and performance characteristics are also reported.

Support is provided for

- EMC Symmetrix Integrated Cache Disk Array (ICDA)
- IBM RAMAC, RAMAC Virtual Array (RVA)
- IBM Enterprise Storage Server (ESS)

The RAID configuration views assist you in reporting and viewing RAID hardware-specific information.

To access the RAID real time monitor

➤➤From the EZSRM Menu, select **RAID Configurations**.

The RAID Devices pop-up menu is displayed, as shown in Figure 4-1.

Figure 4-1 RAID Devices Pop-up Menu

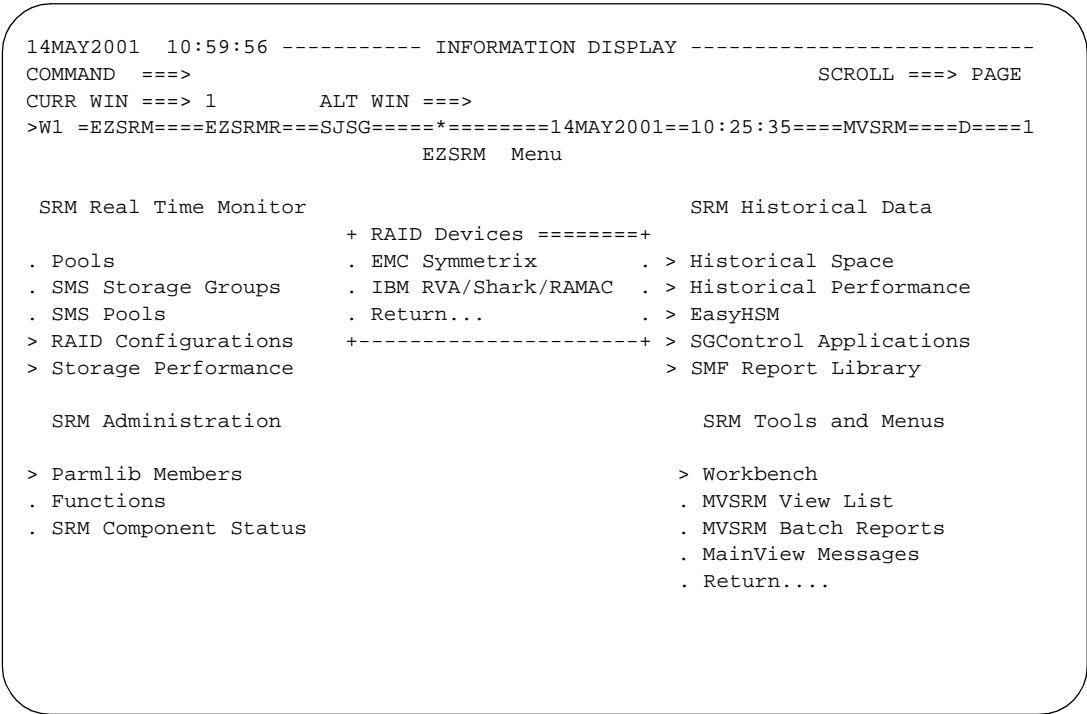


Table 4-1 defines the available views. View invocation and actions are described on the following pages.

Tip: You can use the EZcmd menu to hyperlink to another view rather than the action line command. See the *MAINVIEW SRM User Guide* for details.

Power users can gain functionality by using *primary action commands*. Primary action commands are described in the online help. They appear in reverse video to indicate that you can hyperlink to a detailed description of the command that includes specific arguments used in the command.

Table 4-1 RAID Configuration Views

| View | Description | View Name |
|------------------------|---|------------------|
| EMC Symmetrix | provides specific views of the hardware configuration and performance characteristics of Symmetrix 5000 RAID subsystems | REBOX |
| IBM RVA/Shark/RAMAC | lists the racks accessed by the current OS/390 system One rack can contain multiple storage subsystems, with each subsystem containing a maximum of 64 logical volumes. The rack also contains multiple drawers, with each drawer controlling four physical disks containing multiple volumes. | RIBOX |

EMC Symmetrix Views

The EMC Symmetrix tabular view provides specific views of the hardware configuration and performance characteristics of Symmetrix 5000 RAID subsystems.¹

| View Type | View Name | View Invocation |
|-----------|-----------|-----------------|
| Tabular | REBOX | REBOX |

The following actions are available on the REBOX view:

| Action | Description | Hyperlinks |
|--------|--|------------|
| C | lists the specific configuration for a Symmetrix system | RECONFIG |
| D | lists all directors within an EMC Symmetrix system or box A director in an EMC subsystem is a set of micro processors that control disk, channel, ESCON, and remote operations. | REDIR |
| P | lists all physical volumes for a selected director | REPHY |
| R | lists the remote volumes that are associated with a Symmetrix Remote Data Facility (SRDF) configuration | RESRDF |
| S | displays the highest level for a Symmetrix subsystem The SSID shows all EMC subsystems that are defined on the current system. | RESUB |
| V | lists all Symmetrix logical volumes within a selected subsystem A logical volume is defined as the host volume. | REVOL |

The following actions are available on the REDIR view:

| Action | Description | Hyperlinks |
|--------|---|------------|
| D | lists all devices for a selected director | REDEV |
| P | lists all physical volumes for a selected director | REPHY |
| V | lists all Symmetrix logical volumes within a selected subsystem | REVOL |

The following actions are available on the REPHY view:

| Action | Description | Hyperlinks |
|--------|---|------------|
| D | lists all devices for a selected director | REDEV |
| P | lists performance statistics for a selected volume | MVOLPER |
| V | lists all Symmetrix logical volumes within a selected subsystem | REVOL |

1. The EMC RAID reporting feature of StorageGUARD was made possible by the use of an API provided by EMC Corporation.

The following actions are available on the RESUB view:

| Action | Description | Hyperlinks |
|--------|---|------------|
| V | lists all Symmetrix logical volumes within a selected subsystem | REVOL |

The following actions are available on REVOL view:

| Action | Description | Hyperlinks |
|--------|---|------------|
| C | lists cache statistics for a selected volume The information is obtained through IDCAMS services and shows read and write hit rates along with other cache usage statistics. | MVOLCACH |
| P | lists performance statistics for a selected volume | MVOLPER |

The following actions are available on MVOLPER view:

| Action | Description | Hyperlinks |
|--------|--|------------|
| P | lists performance statistics that were gathered by the DASD Performance Option (DPO) for the UCBs related to the selected volume | MVOLPAV |

IBM RVA/Shark/RAMAC Views

The IBM RVA/Shark/RAMAC tabular view lists the racks that are accessed by the current OS/390 system. One rack can contain multiple storage subsystems, with each subsystem containing a maximum of 64 logical volumes. The rack also contains multiple drawers, with each drawer controlling four physical disks containing multiple volumes.

| View Type | View Name | View Invocation |
|-----------|-----------|-----------------|
| Tabular | RIBOX | RIBOX |

The following actions are on the RIBOX view:

| Action | Description | Hyperlinks |
|--------|--|------------|
| D | lists the drawers containing volumes that are accessed by the current OS/390 system One drawer contains four physical disks, with the user volumes striped across the first three physical disks; the fourth disk is used for parity. | RIPHY |
| S | lists the storage subsystems within IBM devices The subsystem must contain a volume that was generated on the current OS/390 image to be included. | RISUB |
| V | lists volumes that are contained within IBM devices You can invoke this view to display the volumes for a rack, the volumes for a drawer, or the volumes for a subsystem. | RIVOL |

The following actions are on the RIPHY view:

| Action | Description | Hyperlinks |
|--------|---|------------|
| P | lists performance statistics for a selected volume | MVOLPER |
| V | lists volumes that are contained within IBM devices You can invoke this view to show the volumes for a rack, the volumes for a drawer, or the volumes for a subsystem. | RIVOL |

The following actions are on the RISUB view:

| Action | Description | Hyperlinks |
|--------|---|------------|
| V | lists volumes that are contained within IBM devices You can invoke this view to show the volumes for a rack, the volumes for a drawer, or the volumes for a subsystem. | RIVOL |

The following actions are on the RIVOL view:

| Action | Description | Hyperlinks |
|--------|--|------------|
| C | lists cache statistics for a selected volume The information is obtained through IDCAMS services and shows read and write hit rates, along with other cache usage statistics. | MVOLCACHE |
| P | lists performance statistics for a selected volume | MVOLPER |

Chapter 5 Historical Space Data

MAINVIEW SRM historical space utilization views assist you in determining the current use and growth of DASD in your data center. DASD usage can be reported from several different views, including overall summary by time, by storage pools, by RAID volumes, by applications, and by volumes.

This chapter describes the following topics:

| | |
|---|------|
| Historical Space Data Collector | 5-1 |
| Database Overview. | 5-2 |
| Data Collector Parameters | 5-3 |
| Activating and Deactivating the Historical Space Data Collector . . . | 5-3 |
| Using More Than One Data Collector | 5-5 |
| Implementing Security | 5-6 |
| Historical Space Views | 5-8 |
| Summary by Time Views | 5-10 |
| Pool Utilization View | 5-12 |
| RAID Device Utilization View | 5-15 |
| RAID Volumes by RAID Device View | 5-17 |
| SG-Control Applications View | 5-20 |
| Volumes View. | 5-23 |

Historical Space Data Collector

Historical space utilization data is stored in the historical space data collector. The historical space data collector writes a snapshot to a linear data set that maintains storage utilization information by volume, pool, and application. The period for which information is available is determined by the frequency of the snapshots as well as the size of the historical space database. If SG-Control is installed and active, application-level information can be extracted from the SG-Control database.

Database Overview

The historical space database consists of three linear data sets: volume, pool, application. Each data set contains a series of snapshots of DASD utilization taken from different perspectives. A fourth data set also is allocated. This fourth data set is not used at present but is required to ensure upward compatibility with future releases.

The *volume* data set contains a series of volume snapshots. The volume snapshots are created at regular intervals from the information that is available in the volume table of contents (VTOC) on each DASD volume.

The *pool* data set contains a series of pool snapshots. A pool is a user-defined group of DASD volumes that are monitored as a single entity. Volume pool definitions are defined using the data collector input parameters.

The *application* data set contains a series of snapshots that are extracted from the SG-Control database. SG-Control is the optional component that provides real-time monitoring, budgeting, and control of DASD space utilization. Applications are user-defined and can be used to track space utilization by developers, project teams, applications, and departments.

Note: Application-level information is extracted from the SG-Control database; therefore, SG-Control must be active to obtain this information.

The data collector writes to the database using a wraparound method. When a data set is full, the earliest snapshots are overwritten by the current snapshot.

Refer to the *MAINVIEW SRM Customization Guide* for information about customizing StorageGUARD, including the Historical Space Database Allocation Calculation Worksheet and instructions for allocating a database.

Data Collector Parameters

System parameters and pool definitions are used to control the data collector function. The input parameters are used to specify the volumes to be monitored, how pools are constructed, and the read and write intervals.

System SET Statements

The following system parameters are specified in the SMMSYSxx member of *?prefix.BBPARM*. The parameters are described in the *MAINVIEW SRM Reference Summary*.

| | |
|--------------|--------------|
| PASSWORD= | SGINITPOOLn= |
| SG_EXITVOL= | SGINITVOLn= |
| SG_INITPOOL= | SGEXITACCTn= |
| SG_INITVOL= | SGEXITPOOLn= |
| SG_MAXACCT= | SGEXITVOLn= |
| SG_MAXPOOL= | SGMAXACCTn= |
| SG_MAXSSDSZ= | SGMAXPOOLn= |
| SG_READNTVL= | SGMAXSSDSZn= |
| SG_RETRYLIM= | SGPROCACCTn= |
| SG_SPACHLDR= | SGPROCPOOLn= |
| SG_SUBTASKS= | SGPROCVLERN= |
| SG_WRITNTVL= | SGPROCVOLn= |
| SGD_PROCNM= | SGREADNTVLn= |
| SGD_SMFID= | SGRETRYLIMn= |
| SGDCOLLECT= | SGSPACHLDRn= |
| SGDCOLLECTn= | SGSUBTASKSn= |
| SGDPROCNMn= | SGWRITNTVLn= |
| SGDSMFIDn= | |

Pool Definitions

The historical space data collector collects information for volumes that have been assigned to a pool only. See the *MAINVIEW SRM User Guide and Reference* for instructions on how to define a pool.

Activating and Deactivating the Historical Space Data Collector

The historical space data collector is activated when StorageGUARD is started with MAINVIEW SRM Operator Services (SVOS). The data collector is deactivated when StorageGUARD is stopped by using SVOS.

Note: Data collector load modules must be located in an APF-authorized load library.

The JCL that is used to activate the StorageGUARD data collector data sets is in *?prefix.BBSAMP* (SGDCOLLS). The started task name is specified by using the SGD_PROCNM parameter in the SMMSYS.xx system member. Modify SGDCOLLS according to the instructions in the member header, and then copy the member to a system procedure library.

Tip: Ignore any IEC999I IFGOTC0A, IFGOTC0B messages that occur during shutdown. These informational messages may appear when the data collector terminates an RVA collection subtask.

Data definition (DD) statements that are used in SGDCOLLS have the following requirements:

| Data Definition | Contents | Requirements |
|-----------------|--|--|
| SGRDVOL | volume snapshots | This DD statement is required and the data set should be allocated with a DISP=SHR. |
| SGRDPOOL | pool snapshots | This DD statement is required and the data set should be allocated with a DISP=SHR. |
| SGRDACNT | application snapshots | This DD statement is required and the data set should be allocated with a DISP=SHR. |
| SGRDDSN | | Reserved for future use. This DD statement is required and the data set should be allocated with a DISP=SHR. |
| SGCDB | SG-Control application database | This DD statement is required and the data set should be allocated with a DISP=SHR. If you do not use SG-Control, you can code //SGCDB DD DUMMY. |
| SIBLMSG | IXFP SIBBATCH output messages work file | This DD statement is required only when you are collecting IXFP RVA device information. |
| SIBRMSG | IXFP SIBBATCH output reports work file | This DD statement is required only when you are collecting IXFP RVA device information. |
| STEPLIB | StorageGUARD load modules | Defines the <i>?prefix.BBLINK</i> library, which contains the StorageGUARD load modules, and the user-defined <i>?prefix.USER.BBLINK</i> library. User exits should be placed in an authorized, user-defined <i>?prefix.USER.BBLINK</i> library. When you are collecting IXFP RVA device information the following IXFP load libraries must be included in the link list or added to the STEPLIB concatenation: <i>?ixfphlq.SIBLOAD</i> <i>?ixfphlq.STKLOAD</i> <i>?ixfphlq.SIBLINK</i> |
| SVWEXEC | StorageGUARD REXX procedures | Defines the <i>?prefix.BBCLIB</i> library which contains the StorageGUARD REXX procedures. This DD statement is required only when you are collecting IXFP RVA device information. |
| SYSIN | IXFP SIBBATCH control statements work file | This DD statement is required only when you are collecting IXFP RVA device information. |

| Data Definition | Contents | Requirements |
|-----------------|---|---|
| SYSPRINT | IXFP SIBBATCH system messages output file | This DD statement is required only when you are collecting IXFP RVA device information. |
| SYSTEM | IXFP SIBBATCH terminal output file | This DD statement is required only when you are collecting IXFP RVA device information. |
| SYSTSPRT | system output file | This DD statement is required when you are collecting IXFP RVA device information. This system output data set is used by the REXX interpreter for error messages, as well as output from the REXX SAY command. |

Using More Than One Data Collector

In most cases, a single data collector is sufficient for all of your installation's purposes. If you find a significant need to run one or more additional data collectors, use the sample SGDCOLLX in *?prefix.USER.BBLINK*. Place a copy of this new procedure in a standard accessible PROCLIB data set and modify it as described previously for SGDCOLLS. The JCL in SGDCOLLX differs from the JCL in SGDCOLLS because SGDCOLLX contains a symbolic parameter that is used in the PARM field for the SGRDCOLL program.

Assign a unique number (1–8) to each alternate collector. Then, specify the name of the procedure as the value on the SGDPROCNM n parameter.

Example

If you assigned the number 3 to an alternate collector, the parameter and value for it would be SGDPROCNM3=procedure name. You then define other parameters (for example, SGMAXTASKS3, SGREADNTVL3, and SGMAXPOOL3) to specify any differences from the default values.

You must also use SGDCOLLECT3=YES in the system pool member to identify the pools that should be monitored by this collector. Only pools that are explicitly designated are monitored by an alternate collector. (See the *MAINVIEW SRM Reference Summary* for descriptions of these parameters.) The symbolic SVSGD3 would be used in a SVOS start command to invoke the alternate collector.

Each data collector must have its own copy of the data collector data sets. Data collector data sets cannot be shared between collectors.

The following values are set by SVOS when StorageGUARD is started in SVOS:

SSID=ssss

ssss is the Subsystem ID assigned to SVOS in the STC JCL PARM field,

PARM='SUBSYS=ssss'

SGDID=*n*

n is the alternate collector ID number

This number is assigned by SVOS when the product is started. The SVSGD default is 0 in the JCL; SVSGD1–8 are 1–8. See the description of the SGDPROCnMn= parameter in the MAINVIEW SRM Summary Guide.

Implementing Security

The data collector must have sufficient authorization to be able to collect information about all volumes in the system. However, the data sets that are involved in data collection must be secured against unauthorized modifications.

The data collector must be able to access all data sets that are assigned to it. In addition, it requires update access to its own databases (DD names SGRDVOL, SGRDPOOL, SGRDACNT and SGRDDSN).

All users who are authorized to use the MAINVIEW SRM ISPF interface should have read access to the data collector data sets. Storage management staff may also require read access to the data sets that are used by the REXX procedures as well. These data sets contain a log about exceptional conditions that were encountered, information about the jobs that were submitted to background, and so on.

It is important to prevent simultaneous updates of data sets. You cannot use the standard method that is provided by OS/390 to give the data collector exclusive control of the data sets. Under OS/390, no other task could read these data sets while the task (which exclusively owns the data sets) is running. But you may want to read both the database and the other data sets for current information. Since the data collector should running always (if your system is up), one method of dealing with this problem involves allocation of data sets as DISP=SHR. This removes the protection that OS/390 would otherwise provide.

Note: You must make sure that no improper modification occurs. Update access to the database, logs, and so on should *not* be assigned to users.

Be careful when you are running multiple data collectors. Each data collector must have a dedicated data set of its own. No standard technology prevents you from starting the same task several times in your processor complex, but a simple method provides help. You can assign a separate data set to each data collector with exclusive control. These data sets can be allocated with no space occupied at all (with SPACE=(TRK,0)) because they serve only to activate the OS/390 control mechanism that ensures data set integrity.

This mechanism is used to make sure that no other task can allocate this data set when the data collector is active. This technique delays the second (accidental) start of a procedure that is already running on a processor. This simple method cannot be used on different processors unless you have Global Resource Serialization (GRS) or a similar product that expands the same protection mechanism to cover the whole enterprise. It is the responsibility of operating personnel to make sure that the same procedure is never active on more than one processor.

Historical Space Views

To access the historical space utilization views

» From the EZSRM Menu, select **Historical Space**.

The EZSRMSGD menu is displayed, as shown in Figure 5-1.

Figure 5-1 EZSRMSGD Menu

```

14MAY2001 11:01:26 ----- INFORMATION DISPLAY -----
COMMAND ===> SCROLL ===> PAGE
CURR WIN ===> 1 ALT WIN ===>
>W1 =EZSRMSGD=====SJS=====14MAY2001==11:01:26===MVSMSGD=D===1
EZSRMSGD Menu

Historical Space      +-----+
|                     | Place cursor on |
|> Summary by Time    | menu item and |
|. Pool Utilization   | press ENTER  |
|. RAID Physicals     +-----+
|. SGControl Applications
|. Volumes

SRM Administration    SRM Tools and Menus

> Parmlib Members      > Workbench
. Functions             . MVSMSGD View List
. SRM Component Status . MVSMSGD Batch Reports
                       . Return....

```

Table 5-1 defines historical space views. View invocation and actions are described on the following pages.

Tip: You can use the EZcmd menu to hyperlink to another view rather than the action line command. See the *MAINVIEW SRM User Guide* for details.

Power users can gain functionality by using *primary action commands*. Primary action commands are described in the online help. They appear in reverse video to indicate that you can hyperlink to a detailed description of the command that includes specific arguments used in the command.

Note: Setting the TIME command is critical for viewing historical information. For instructions on using the TIME command, see the *Using MAINVIEW* manual or enter **HELP TIME** on the **COMMAND** line.

Table 5-1 **Historical Space Views**

| View | Description | View Name | Page |
|-------------------------|--|--------------------|--------------|
| Summary by Time | provides a list of interval snapshots and links to summarized and other views for DASD devices | SPSNAP | 5-10 |
| Pool Utilization | provides pool-level space usage information | SPPOOL | 5-12 |
| RAID Physicals | provides RAID device usage information | SPRAID SPRAIDVO | 5-15 5-17 |
| SG-Control Applications | provides application-level space usage information | SPAPPL | 5-20 |
| Volumes | provides volume-level space usage information | SPVOL | 5-23 |

Summary by Time Views

To access the Summary by Time views

»» From the EZSGD Menu, select **Summary by Time**.

The Summary Range pop-up menu is displayed, as shown in Figure 5-1.

Figure 5-2 Summary Range Pop-up Menu

```

14MAY2001  11:02:13  -----  INFORMATION DISPLAY  -----
COMMAND  ===>
CURR WIN ===> 1      ALT WIN ===>
>W1 =EZSRMSGD=EZSRMT===SJSG=====14MAY2001==11:01:26===MVSMSGD=D===1
                                EZSRMSGD  Menu

  Historical Space

> Summary by Time      + Summary Range =====+
. Pool Utilization    . Snapshot                .
. RAID Physicals      . Daily                  .
. SGControl Applications . Weekly                  .
. Volumes              . Monthly                  .
                      . Return...                .

  SRM Administration  +-----+  SRM Tools and Menus

> Parmlib Members
. Functions
. SRM Component Status

> Workbench
. MVSMSGD View List
. MVSMSGD Batch Reports
. Return....

```

Table 5-2 defines the available views. View invocation and actions are described on the following pages.

Table 5-2 Summary by Time Views

| View | Description | View Name |
|----------|--|-----------|
| Snapshot | lists all snapshots for DASD devices in a given time period | SPSNAP |
| Daily | provides a daily summary of snapshots using the TIME command range | SPSNAPD |
| Weekly | provides a weekly summary of snapshots using the TIME command range | SPSNAPW |
| Monthly | provides a monthly summary of snapshots using the TIME command range | SPSNAPM |

Space Utilization View

The SPSNAP view lists all snapshots by time for DASD devices. From this view, you can link to detailed information, applications, pools, volumes, and summary views by day, week, and month.

| View Type | View Name | View Invocation |
|-----------|-----------|-----------------|
| Tabular | SPSNAP | SPSNAP |

The following actions are available on the SPSNAP view:

| Action | Description | View Name |
|--------|--|-----------|
| A | displays applications for the selected snapshot | SPAPPL |
| D | displays details for the selected snapshot | SPSNADT |
| P | displays pools for the selected snapshot | SPPOOL |
| V | displays volumes for the selected snapshot | SPVOL |
| I | provides a daily summary of snapshots using the TIME command range | SPSNAPD |
| W | provides a weekly summary of snapshots using the TIME command range | SPSNAPW |
| M | provides a monthly summary of snapshots using the TIME command range | SPSNAPM |

Example

SPSNAP

displays historical space snapshots for an interval The interval defaults to 7 days preceding the current date/time or the TIME command range (if used).

Pool Utilization View

The SPPOOL view provides historical space usage information by date and time for pools. From this view, you can link to

- detailed information for a selected pool
- a list of all snapshots for a selected pool (history) based on the TIME command range
- a volume list for a selected pool
- snapshots for a selected pool (history) based on the TIME command range, summarized by day
- snapshots for a selected pool (history) based on the TIME command range, summarized by week
- snapshots for a selected pool (history) based on the TIME command range, summarized by month

| View Type | View Name | View Invocation |
|-----------|-----------|---|
| Tabular | SPPOOL | SPPOOL <i>intdate inttime grptype grpname</i> |

INTERVAL View Invocation

| Optional Input | | Valid Values | Default |
|----------------------------------|-----------------------------------|--|----------|
| <i>intdate</i> <i>inttime</i> | interval date/interval time | format: YYYY/MM/DD HH:MM specifies the date and time of the specific recording interval from which historical space statistics are to be obtained Defaults to * if not specified. When * is specified or taken as the default, the last snapshot date and time are used unless the TIME command has been specified. If the TIME command has been specified, the TIME end date and time is the interval that is selected to be displayed. | * |
| <i>grptype</i> | group type | INTERVAL displays all pool entries for the specific snapshot date and time <ul style="list-style-type: none"> • If the interval date and time are specified, this value displays all pools for the specified snapshot that is identified by the interval date/time. • If the interval date and time are <i>not</i> specified or are not specified as *, the last snapshot date and time are used unless the TIME command has been specified. If the TIME command has been specified, the TIME end date and time is the interval that is selected to be displayed. | INT or * |

Example

SPPOOL

displays pools for the last snapshot for an interval

The interval is determined from the TIME command end date and time.

Example

SPPOOL 2000/12/11 21:02:00

displays pools for a specified snapshot interval

The interval is determined from the user input, using 2000/12/11 as the date and 21:02 as the time.

TREND View Invocation

| Optional Input | | Valid Values | Default |
|----------------------------------|-----------------------------------|--|---------|
| <i>intdate</i> <i>inttime</i> | interval date/interval time | format: YYYY/MM/DD HH:MM specifies the date and time of the specific recording interval from which historical space statistics are to be obtained Values * * should be specified as positional parameters. The TIME command is used to identify the range. | * * |
| <i>grptype</i> | group type | TREND displays snapshots for a specified pool using the date/time range that is indicated in the TIME command | TREND |
| <i>grpname</i> | group name | <i>poolname</i> specifies the pool name for snapshot selection | |

Example

SPPOOL * * TREND PUBA

displays snapshots for the specified range that is indicated in the TIME command for pool PUBA

Start and end dates and times are retrieved from the parameters in the MAINVIEW TIME command. If the TIME command is not set, the default is a duration of 7 days (168 hours) before the current date and time.

The following actions are available on the SPPPOOL view:

| Action | Description |
|--------|---|
| D | displays a detailed view for selected pool snapshot |
| H | displays snapshots for time span for specified the pool |
| V | displays volumes for the selected pool |
| I | displays snapshots for a selected pool (history) based on the TIME command range, summarized by day |
| W | displays snapshots for a selected pool (history) based on the TIME command range, summarized by week |
| M | displays snapshots for a selected pool (history) based on the TIME command range, summarized by month |

RAID Device Utilization View

The RAID Device Utilization view provides RAID device usage information by date and time. From this view, you can link to

- detailed information for a selected snapshot
- a list of all snapshots for a specific RAID device (history)
- RAID volumes for a selected RAID device
- snapshots for a selected RAID device (history) based on the TIME command range, summarized by day
- snapshots for a selected RAID device (history) based on the TIME command range, summarized by week
- snapshots for a selected RAID device (history) based on the TIME command range, summarized by month

| View Type | View Name | View Invocation |
|-----------|-----------|---|
| Tabular | SPRAID | SPRAID <i>intdate inttime grptype grpnamehex devicetype grpname</i> |

Snapshot View Invocation

| Optional Input | | Valid Values | Default |
|----------------------------------|-----------------------------------|--|---------|
| <i>intdate</i> <i>inttime</i> | interval date/interval time | * * only value supported; defaults to current interval | * * |
| <i>grptype</i> | group type | * displays all RAID devices for the current snapshot | * |

Example

SPRAID

displays RAID devices for the last snapshot for an interval

The interval is determined from the TIME command end date and time.

TREND View Invocation

| Optional Input | | Valid Values | | Default |
|----------------------------------|-----------------------------------|-------------------|--|---------|
| <i>intdate</i> <i>inttime</i> | interval date/interval time | * * | only value supported; defaults to the current interval | * * |
| <i>grptype</i> | group type | TREND | displays all snapshots for the time period that is identified in the TIME command for the specified volume | |
| <i>grpnamehex</i> | group name HEX | <i>grpnamehex</i> | RAID device internal Hex name; used to select the device data in the database | |
| <i>devicetype</i> | device type | <i>devicetype</i> | RAID device type | |
| <i>grpname</i> | group name | <i>devicename</i> | RAID device name | |

Start and end dates and times are retrieved from the parameters in the MAINVIEW TIME command. If the TIME command is not set, the default is a duration of 7 days (168 hours) before the current date and time.

Example

```
SPRAID * * TREND 0100000004170AC0 EMC-PVOL 01047-0A-C0
```

displays snapshots for the specified range indicated in the TIME command for RAID device 0100000004170AC0

Note: These values are used for output on view EMC-PVOL 01047-0A-C0.

The following actions are available on the SPRAID view:

| Action | Description |
|--------|--|
| D | displays a detailed view of selected snapshot |
| H | displays snapshots for a specified RAID device using the TIME command range |
| V | displays RAID volumes for a selected RAID device |
| I | displays snapshots for a selected RAID device (history) based on the TIME command range, summarized by day |
| W | displays snapshots for a selected RAID device (history) based on the TIME command range, summarized by week |
| M | displays snapshots for a selected RAID device (history) based on the TIME command range, summarized by month |

RAID Volumes by RAID Device View

The RAID Volumes by RAID Device view displays RAID volumes for a selected RAID device. To access RAID volumes by RAID Device, you can access the SPRAIDVO view in two ways:

- Use the **V** Volumes Action from the RAID Device Utilization view (SPRAID).
- Type the view invocation command that is described below.

| View Type | View Name | View Invocation |
|-----------|-----------|--|
| Tabular | SPRAIDVO | SPRAIDVO <i>intdate inttime grptype grpnamehex volume devicetype grpname</i> |

INTERVAL View Invocation

| User Input | | Valid Values | Default |
|--------------------|--------------------------------|---|----------|
| intdate inttime | interval date/interval time | format: YYYY/MM/DD HH:MM specifies the date and time for a snapshot interval Defaults to * if not specified. When * is specified or taken as the default, the last snapshot date and time are used unless the TIME command has been specified. If the TIME command has been specified, the TIME end date and time is the interval selected to display. | * * |
| grptype | group type | INTERval displays all volume entries for specific snapshot date and time <ul style="list-style-type: none"> • If interval date and time are specified, displays all volumes for specified snapshot that is identified by the interval date and time. • If interval date and time are <i>not</i> specified or are not specified as *, the last snapshot date and time are used unless the TIME command has been specified. If the TIME command has been specified, the TIME end date and time is the interval that is selected to be displayed. | INT or * |
| grpnamehex | group name Hex | hexname RAID device internal Hex name; used to select the device date in the database | |

Example

SPRAIDVO 2000/12/11 21:02:00 INT 0100000004170AC0

displays snapshots for the volume in the specified RAID device for the specified interval

Example

```
SPRAIDVO * * INT 0100000004170AC0
```

displays volumes for the specified RAID device for the last snapshot or the TIME command end date/time (if set)

TREND View Invocation

| User Input | | Valid Values | Default |
|----------------------------------|--------------------------------|---|---------|
| <i>intdate</i> <i>inttime</i> | interval date/interval time | format: YYYY/MM/DD HH:MM specifies the date and time for a snapshot interval Values * * should be specified as positional parameters. The TIME command is used to identify the range. | * * |
| <i>grptype</i> | group type | TREND displays all snapshots for the time period that is identified in the TIME command for the specified RAID device and volume | |
| <i>grpnamehex</i> | group name Hex | <i>grpnamehex</i> (required) RAID device internal Hex name; used to select the device date in the database | |
| <i>volume</i> | volume | <i>volume</i> (required) volume that is used for snapshot history selection | |
| <i>devicetype</i> | device type | <i>devicetype</i> (optional) RAID device type | |
| <i>grpname</i> | group name | <i>devicename</i> RAID device name | |

Start and end dates and times are retrieved from the parameters in the MAINVIEW TIME command. If the TIME command is not set, the default is a duration of 7 days (168 hours) before the current date and time.

Example

```
SPRAIDVO * * TREND 0100000004170AC0 SMSA00 EMC-PVOL  
01047-0A-CO
```

displays snapshots for the specified range that is indicated in the TIME command for RAID device 0100000004170AC0 for volume SMSA00

Note: These values are used for output on view EMC-PVOL 01047-0A-C0.

The following actions are available on the SPRAIDVO view:

| Action | Description |
|--------|--|
| D | displays a detailed view of selected snapshot |
| H | displays snapshots for the volume in the specified RAID device using the TIME command range |
| I | displays snapshots for a selected volume in the specified RAID device (history) based on the TIME command range, summarized by day |
| W | displays snapshots for a selected volume in the specified RAID device (history) based on the TIME command range, summarized by week |
| M | displays snapshots for a selected volume in the specified RAID device (history) based on the TIME command range, summarized by month |

SG-Control Applications View

The Applications view provides space usage information for the applications in the specified snapshot date and time or for the last snapshot. From this view, you can link to

- detailed information for a selected snapshot
- a list of all snapshots for a specific application (history) for a specific time period
- snapshots for a selected application (history) based on the TIME command range, summarized by day
- snapshots for a selected application (history) based on the TIME command range, summarized by week
- snapshots for a selected application (history) based on the TIME command range, summarized by month

| View Type | View Name | View Invocation |
|-----------|-----------|---|
| Tabular | SPAPPL | SPAPPL <i>intdate inttime grptype grpname</i> |

INTERVAL View Invocation

| Optional Input | | Valid Values | Default |
|--------------------|-----------------------------------|---|----------|
| intdate inttime | interval date/interval time | format: YYYY/MM/DD HH:MM specifies the date and time for a snapshot interval Defaults to * if not specified. When * is specified or taken as the default, the last snapshot date and time are used unless the TIME command has been specified. If the TIME command has been specified, the TIME end date and time is the interval selected to display. | * |
| grptype | group type | INTERVAL displays all volume entries for specific snapshot date and time <ul style="list-style-type: none"> • If interval date and time are specified, displays all volumes for specified snapshot that is identified by the interval date and time. • If interval date and time are <i>not</i> specified or are not specified as *, the last snapshot date and time are used unless the TIME command has been specified. If the TIME command has been specified, the TIME end date and time is the interval that is selected to be displayed. | INT or * |

Example

SPAPPL

displays applications for the last snapshot or TIME command end date and time if used.

Example

SPAPPL 2000/12/01 21:02:00

displays applications for a specified snapshot interval

The interval is determined from the user input, using 2000/12/01 as the date and 21:02:00 as the time.

TREND View Invocation

| Optional Input | | Valid Values | Default |
|----------------------------------|-----------------------------------|--|---------|
| <i>intdate</i> <i>inttime</i> | interval date/interval time | format: YYYY/MM/DD HH:MM specifies the date and time of the specific recording interval from which historical space statistics are to be obtained Values * * should be specified as positional parameters. The TIME command is used to identify the range. | * * |
| <i>grptype</i> | group type | TREND displays all snapshots for a specific application | |
| <i>grpname</i> | group name | <i>application</i> <i>name</i> the application name that is used for snapshot selection | |

Start and end dates and times are retrieved from the parameters in the MAINVIEW TIME command. If the TIME command is not set, the default is a duration of 7 days (168 hours) before the current date and time.

Example

SPAPPL * * TREND AGENCY

displays snapshots for the specified range that is indicated in the TIME command for the AGENCY application

The following actions are available on the SPAPPL view are

| Action | Description |
|--------|--|
| D | displays a detailed view for the selected application snapshot |
| H | displays snapshots for the application using the TIME command range |
| I | displays snapshots for a selected application (history) based on the TIME command range, summarized by day |
| W | displays snapshots for a selected application (history) based on the TIME command range, summarized by week |
| M | displays snapshots for a selected application (history) based on the TIME command range, summarized by month |

Volumes View

The Volumes view provides space usage information for the volumes in the specified snapshot date and time or the last snapshot. From this view, you can link to

- detailed information for a selected snapshot
- a list of all snapshots for a specific volume (history) for a specific time period
- snapshots for a selected volume (history) based on the TIME command range, summarized by day
- snapshots for a selected volume (history) based on the TIME command range, summarized by week
- snapshots for a selected volume (history) based on the TIME command range, summarized by month

| View Type | View Name | View Invocation |
|-----------|-----------|--|
| Tabular | SPVOL | SPVOL <i>intdate inttime grptype grpname</i> |

INTERval View Invocation

| Optional Input | | Valid Values | Default |
|----------------------------------|-----------------------------|--|----------|
| <i>intdate</i> <i>inttime</i> | interval date/interval time | format: YYYY/MM/DD HH:MM specifies the date and time of the specific recording interval from which historical space statistics are to be obtained Defaults to * if not specified. When * is specified or taken as the default, the last snapshot date and time are used unless the TIME command has been specified. If the TIME command has been specified, the TIME end date and time is the interval that is selected to be displayed. | * |
| <i>grptype</i> | group type | INTERval displays all pool entries for the specific snapshot date and time <ul style="list-style-type: none"> • If the interval date and time are specified, this value displays all pools for the specified snapshot that is identified by the interval date/time. • If the interval date and time are <i>not</i> specified or are not specified as *, the last snapshot date and time are used unless the TIME command has been specified. If the TIME command has been specified, the TIME end date and time is the interval that is selected to be displayed. | INT or * |

Example

SPVOL

displays volumes for the last snapshot or TIME command end date/time (if used)

Example

SPVOL 2000/12/01 17:21:00

displays volumes for a specified snapshot interval

The interval is determined from the user input, using 2000/12/01 as the date and 17:21:00 as the time.

POOL View Invocation

| Optional Input | | Valid Values | Default |
|----------------------------------|-----------------------------------|--|---------|
| <i>intdate</i> <i>inttime</i> | interval date/interval time | format: YYYY/MM/DD HH:MM specifies the date and time of the specific recording interval from which historical space statistics are to be obtained Defaults to * if not specified. When * is specified or taken as the default, the last snapshot date and time are used unless the TIME command has been specified. If the TIME command has been specified, the TIME end date and time is the interval that is selected to be displayed. | * |
| <i>grptype</i> | group type | POOL displays all volume entries for a specific pool in the specified snapshot date and time <ul style="list-style-type: none"> If the interval date and time are specified, this value displays all pools for the specified snapshot that is identified by the interval date/time. If the interval date and time are <i>not</i> specified or are not specified as *, the last snapshot date and time are used unless the TIME command has been specified. If the TIME command has been specified, the TIME end date and time is the interval that is selected to be displayed. | |
| <i>grpname</i> | group name | <i>poolname</i> the pool name that is used for volume selection | |

Example

```
SPVOL 2000/12/01 17:21:00 POOL PUBA
```

displays volumes for a specified snapshot interval for pool PUBA

The interval is determined from the user input, using 2000/12/01 as the date and 17:21:00 as the time.

TREND View Invocation

| Optional Input | | Valid Values | Default |
|----------------------------------|-----------------------------------|--|---------|
| <i>intdate</i> <i>inttime</i> | interval date/interval time | format: YYYY/MM/DD HH:MM specifies the date and time of the specific recording interval from which historical space statistics are to be obtained Values * * should be specified as positional parameters. The TIME command is used to identify the range. | * * |
| <i>grptype</i> | group type | TREND displays all snapshots for a specific volume | |
| <i>grpname</i> | group name | <i>volume</i> the volume name for snapshot selection | |

Start and end dates and times are retrieved from the parameters in the MAINVIEW TIME command. If the TIME command is not set, the default is a duration of 7 days (168 hours) before the current date and time

Example

```
SPVOL * * TREND PUBA01
```

displays snapshots for the specified range that is indicated in the TIME command for volume PUBA01

The following actions are available on the SPVOL view:

| Action | Description |
|--------|---|
| D | displays a detailed view for selected volume snapshot |
| H | displays snapshots for the time span for the specified volume |
| I | displays snapshots for a selected volume (history) based on the TIME command range, summarized by day |
| W | displays snapshots for a selected volume (history) based on the TIME command range, summarized by week |
| M | displays snapshots for a selected volume (history) based on the TIME command range, summarized by month |

Chapter 6 Historical Performance Data

This chapter includes information about the following topics:

| | |
|--|------|
| Historical Performance Data Collector..... | 6-2 |
| Activating SMF and CMF/RMF Parameters | 6-3 |
| Controlling the Historical Performance Data Collector..... | 6-5 |
| Historical Performance Views | 6-6 |
| System Summary by Time Views | 6-9 |
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| Channel Path Views | 6-12 |
| Cache Control Unit Views | 6-15 |
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| RVA Subsystem Frame Views | 6-48 |
| RAID Rank Views | 6-52 |

Overview

Historical performance data assists you in determining the impact that current use and trends in storage use have on the performance of the storage resources in your data center. Both the absolute utilization of physical volumes and the allocation of specific data sets can cause response time changes. Being able to pinpoint problems when they occur as well as project when problems are likely to occur provide Storage Administrators with information for managing their DASD resources. This is even more important for the optimization of high capacity, high performance RAID implementations. MAINVIEW SRM historical performance provides access to all saved performance data gathered by the historical performance data collector.

Historical Performance Data Collector

The historical performance database is a repository that is used to store data collected by the historical performance data collector. You can choose to store data in a maximum of 100 databases before old data is overwritten. There is never more than one *active* historical performance database, but at system startup, previously collected data from all databases can be accessed.

Starting Data Collection

Historical performance data collection is executed as a started task through MAINVIEW SRM operator service (SVOS), which handles starting, stopping, and all console communications to the collector. Collection of historical performance data may also be executed as a batch job. However, SVOS must also be active for this collection to be executed in batch. The step library for historical performance collection must be APF-authorized.

Collection is started with the following SVOS command after SVOS has started:

```
/S SVSGP
```

For information about SMF and CMF/RMF parameters, optional system parameters, and a database calculator for estimating the historical performance database, see “Activating SMF and CMF/RMF Parameters” on page 6-3.

MAINVIEW SRM FLST Functions

Collection of historical performance data uses the MAINVIEW SRM FLST capability to identify the data that should be recorded in the performance database. Each function is defined in *?prefix.BBPARM* member *SMFUNCxx*. Each definition, except *SGPFILTR*, controls the inclusion or exclusion of a particular record type. Each function is defined as *ACTIVE=NO* in *SMFUNCxx*. If a function is left inactive, no records of that type are recorded in the historical performance database.

Each function is defined in a filter list *SMFLSTPxx* member in *?prefix.BBPARM*. Each filter list member specifies that all records of a particular type are to be recorded in the historical performance database when the function is activated.

In general, to use a function, perform the following steps:

- Step 1** Set the *ACTIVE* parameter to *YES* in the function definition in *SMFUNCxx*.
- Step 2** Define a filter list in an *SMFLSTPx* member with *MODE=ACT* and with parameters to apply the function to a set of resources (jobs, data sets, volumes, pools, and so on).

Activating SMF and CMF/RMF Parameters

For StorageGUARD to collect historical performance data the following requirements must be met:

- SMF and CMF/RMF must be active.
- SMF must have the IEUF83 and IEUF84 exits specified for the areas that data collection is desired.
- Any valid SMF recording interval is allowed, but it should be synchronized.
- Type 30 and type 42 records must be turned on.

The actual recording in the SMF data set of type 42 records can be controlled by the *SGP_SMF42* system parameter in the *SMMSYSxx* member.

Example

The following example shows how to set up SMF for the proper exits and record recording.

```

INTVAL(15)                /*GLOBAL INTERVAL*/
SYNCVAL(15)               /*Synchronization value*/
ACTIVE                    /*ACTIVE SMF RECORDING*/
DSNAME(SYS1.MAN1,SYS1.MAN2,SYS1.MAN3) /* THREE DATA SETS */
NOPROMPT                  /*DO NOT PROMPT OPERATOR FOR OPTIONS*/
REC(PERM)                 /*TYPE 17 PERM RECORDS ONLY*/
MAXDORM(3000)             /* WRITE AN IDLE BUFFER AFTER 30 MIN*/
STATUS(010000)            /* WRITE SMF STATS AFTER 1 HOUR*/
JWT(0800)                 /* 522 AFTER 8 HOURS */
SID(SYSG)                 /* SYSTEM ID IS SYSG */
LISTDSN                   /* LIST DATA SET STATUS AT IPL*/
LASTDS(MSG)               /*DEFAULT TO MESSAGE */
NOBUFFS(MSG)              /*DEFAULT TO MESSAGE */
SYS(EXITS(IEFU83,IEFU84,IEFACTRT,IEFUJV,
          IEFUSI,IEFUJI,IEFUTL,IEFU29),INTERVAL(SMF,SYNC),
      NODETAIL
SUBSYS(STC,EXITS(IEFU29,IEFU83,IEFU84,IEFUJP,IEFUSO),
      INTERVAL(SMF,SYNC))
SUBSYS(XXXX,EXITS(IEFU29,IEFU83,IEFU84,IEFUJP,IEFUSO),
      INTERVAL(SMF,SYNC)) /*XXXX IS SUBSYSTEM CMF TASK IS USING */

```

Example

The recording interval of either RMF or CMF must be synchronized with the SMF interval. The following parameters are the minimum required for CMF:

```

RECORD INTERVAL=xx,RUNTIME=1440,SMF=YES
CHANNEL
DEVICE CLASS=DASD

```

xx is equal to the SMF interval.

Example

If you are running RMF, the parmlib member must specify the following measurement, timing, and recording options:

```
Measurement:  CHAN
              DEVICE(DASD)
Timing:       SYNC(SMF) (synchronizes SMF/RMF intervals)
Recording:    RECORD
```

Controlling the Historical Performance Data Collector

The historical performance data collector is controlled by using the following system parameters:

| Parameter | Description | Default |
|-------------|---|---------|
| SGP_MAXDSNS | maximum number of data sets that could potentially be referenced during a recording interval duration | 1000 |
| SGP_MAXVOLS | maximum number of volumes that could potentially be referenced during a recording interval duration | 250 |
| SGP_MAXJOBS | maximum number of jobs that could potentially be referenced during a recording interval duration | 200 |
| SGP_MAXSCLS | maximum number of storage classes that could potentially be referenced during a recording interval duration | 100 |
| SGP_MAXPOLs | maximum number of pools that could potentially be referenced during a recording interval duration | 100 |
| SGP_MAXPTHS | maximum number of channel paths that could potentially be referenced during a recording interval duration | 256 |
| SGP_MAXLCUS | maximum number of logical control units that could potentially be referenced during a recording interval duration | 256 |
| SGP_MAXCCUS | maximum number of cache control units that could potentially be referenced during a recording interval duration | 256 |
| SGP_MAXDIRS | maximum number of RAID EMC directors that could potentially be referenced during a recording interval duration | 256 |
| SGP_MAXPVLS | maximum number of RAID EMC physical volumes that could potentially be referenced during a recording interval duration | 250 |

Refer to the *MAINVIEW SRM Customization Guide* for customization tasks for StorageGUARD users, including a description of the Historical Performance Database Allocation Calculation Worksheet and instructions for allocating a database.

Historical Performance Views

To access the Historical Performance views:

» From the EZSRM Menu, select **Performance**.

The EZSGP menu is displayed, as shown in Figure 6-1. View invocation and actions are described on the following pages.

Tip: You can use the EZcmd menu to hyperlink to another view rather than the action line command. See the *MAINVIEW SRM User Guide* for details.

Power users can gain functionality by using *primary action commands*. Primary action commands are described in the online help. They appear in reverse video to indicate that you can hyperlink to a detailed description of the command that includes specific arguments used in the command.

Figure 6-1 EZSRMSGP Menu

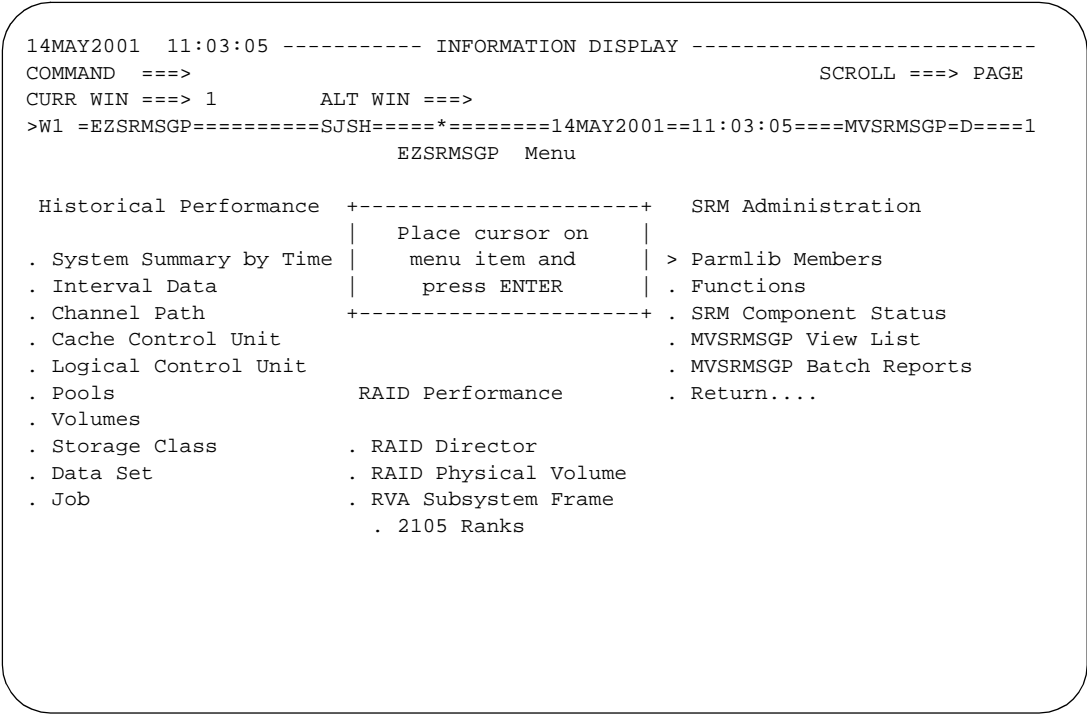


Table 6-1 defines the Historical Performance views.

Table 6-1 Historical Performance Views (Part 1 of 2)

| View Description | Description | View Name |
|-------------------------|---|--|
| System Summary by Time | provides summarized performance history information by time for historical data | PRSSUM PRSSUMD PRSSUMW PRSSUMM PRSSUMDET |
| Interval Data | displays all interval reports on the database | PRINTV |
| Channel Path | displays a selected channel path record for a specific date and time | PRCHP PRCHPD PRCHPW PRCHPM PRCHPDL |
| Cache Control Unit | displays a selected cache controller record for a specific date and time | PRCCU PRCCUD PRCCUW PRCCUM PRCCUDTL |
| Logical Control Unit | displays a selected logical control unit record for a specific date and time | PRLCU PRLCUD PRLCUW PRLCUM PRLCUDTL |
| Pools | displays a selected pool record for a specific date and time | PRPOOL PRPOOLD PRPOOLW PRPOOLM PRPOOLDTL |
| Volumes | displays a selected volume record for a specific date and time | PRVOL PRVOLD PRVOLW PRVOLM PROVLDTL |
| Storage Class | displays a selected storage class record for a specific date and time | PRSCL PRSCLD PRSCLW PRSCLM PRSCLDTL |

Table 6-1 Historical Performance Views (Part 2 of 2)

| View Description | Description | View Name |
|-------------------------|--|--|
| Data Set | displays a selected data set record for a specific date and time | PRDS PRDSD PRDSW PRDSM PRDSDL |
| Job | displays a selected job record for a specific date and time | PRJOB PRJOB PRJOBW PRJOB PRJOB |

System Summary by Time Views

System Summary by Time tabular views provide summarized performance history information by time for historical data by system, by day, by week, and by month. The detail view displays the selected system record in vertical format.

| View Type | View Name | View Invocation |
|---------------------|-----------|-----------------|
| Tabular | PRSSUM | PRSSUM |
| Summarized by day | PRSSUMD | PRSSUMD |
| Summarized by week | PRSSUMW | PRSSUMW |
| Summarized by month | PRSSUMM | PRSSUMM |
| Detail | PRSSUMDET | PRSSUMDET |

Start and end dates and times are retrieved from the parameters in the MAINVIEW TIME command. If hex zero start and end dates and times are given, all system summary records are returned.

The following actions are available on the tabular view:

| Action | Description | Hyperlinks |
|--------|---|---------------------------|
| J | shows jobs for a selected system summary | PRJOB date time INTERVAL |
| L | shows logical control units for a selected system summary | PRLCU date time INTERVAL |
| P | shows pools for a selected system summary | PRPOOL date time INTERVAL |
| V | shows volumes for a selected system summary | PRVOL date time INTERVAL |
| CC | shows cache control units for a selected system summary | PRCCU date time INTERVAL |
| CP | shows channel paths for a selected system summary | PRCHP date time INTERVAL |
| DR | shows RAID directors for a selected system summary | PRRDIR date time INTERVAL |
| DS | shows data sets for a selected system summary | PRDS date time INTERVAL |
| PV | shows RAID physical volumes for a selected system summary | PRVOL date time INTERVAL |
| RF | shows RVA subsystem frames for a selected system summary | PRRSF date time INTERVAL |

| Action | Description | Hyperlinks |
|--------|--|------------------------------------|
| RR | shows RAID ranks for a selected system summary | PRRRK <i>date time</i> INTERVAL |
| SC | shows storage classes for a selected system summary | PRSCL <i>date time</i> INTERVAL |
| D | displays details for the selected snapshot | PRSSUMDET |
| I | displays a daily summarization of snapshots using the TIME command range | PRSSUMD |
| W | displays a weekly summarization of snapshots using the TIME command range | PRSSUMW |
| M | displays a monthly summarization of snapshots using the TIME command range | PRSSUMM |

Interval Data View

The Interval Data view displays all interval views that are stored in the database.

| View Type | View Name | View Invocation |
|-----------|-----------|-----------------|
| Tabular | PRINTV | PRINTV |

Start and end dates and times are retrieved from the parameters in the MAINVIEW TIME command. If hex zero start and end dates and times are given, all system summary records are returned.

The following actions are available on the tabular view:

| Action | Description | Hyperlinks |
|--------|---|--|
| J | shows jobs for a selected interval | PRJOB <i>date time</i> <i>INTERVAL</i> |
| L | shows logical control units for a selected interval | PRLCU <i>date time</i> <i>INTERVAL</i> |
| P | shows pools for a selected interval | PRPOOL <i>date time</i> <i>INTERVAL</i> |
| V | shows volumes for a selected interval | PRVOL <i>date time</i> <i>INTERVAL</i> |
| CC | shows cache control units for a selected interval | PRCCU <i>date time</i> <i>INTERVAL</i> |
| CP | shows channel paths for a selected interval | PRCHP <i>date time</i> <i>INTERVAL</i> |
| DR | shows RAID directors for a selected interval | PRRDIR <i>date time</i> <i>INTERVAL</i> |
| DS | shows data sets for a selected interval | PRDS <i>date time</i> <i>INTERVAL</i> |
| PV | shows RAID physical volumes for a selected interval | PRVOL <i>date time</i> <i>INTERVAL</i> |
| RF | shows RVA subsystem frames for a selected interval | PRRSF <i>date time</i> <i>INTERVAL</i> |
| RR | shows RAID ranks for a selected interval | PRRRK <i>date time</i> <i>INTERVAL</i> |
| SC | shows storage classes for a selected interval | PRSCL <i>date time</i> <i>INTERVAL</i> |

Channel Path Views

Channel Path tabular views display selected channel path records for specific dates and times. The detail view displays the selected channel path record in vertical format.

| View Type | View Name | View Invocation |
|---------------------|-----------|--|
| Tabular | PRCHP | PRCHP <i>intdate inttime grptype grpname</i> |
| Summarized by day | PRCHPD | PRCHPD <i>intdate inttime grptype grpname</i> |
| Summarized by week | PRCHPW | PRCHPW <i>intdate inttime grptype grpname</i> |
| Summarized by month | PRCHPM | PRCHPM <i>intdate inttime grptype grpname</i> |
| Detail | PRCHPDL | PRCHPDL <i>intdate inttime grptype grpname</i> |

| View Invocation | | | |
|--------------------|-----------------------------------|--|---|
| Optional Input | | Valid Values | Default |
| intdate inttime | interval date/interval time | format: CCYYMMDD Specifies the date and time of the specific recording interval from which channel paths are to be obtained. Defaults to * if not specified. When * is specified or taken as the default, the TIME command end date and time are used as the interval time to be displayed. | * |
| grptype grpname | group type group name | <p>INTERVAL shows channel paths that are defined by a system summary record or interval record The interval date and time or the TIME command end date and time are used to determine an interval. The group name parameter is not used for this group type and, when specified, is ignored. If the group name is not specified, INTERVAL is the default group type.</p> <p>LCU shows channel paths for a specific LCU The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 4-character LCU ID.</p> <p>VOLUME shows channel paths for a specific volume The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 6-character volume serial number.</p> <p>TREND shows channel path trending over a number of intervals The group name parameter must be a 4-character channel path ID. The TIME command start and end dates/times are used to determine the time span to report.</p> | INTERVAL (if no group name parameter is specified) |

Start and end dates and times are retrieved from the parameters in the MAINVIEW TIME command. The format of the TIME command fields is CCYYMMDD and HHMM. These TIME command fields are used only for TREND (trending) requests. The end date and time are used for the interval date and time when those parameters are specified as *.

The following actions are available on the tabular view:

| Action | Description | Hyperlink |
|--------|--|--|
| L | shows logical control units for a selected channel path | PRLCU <i>date time</i> CHANPATH ID |
| V | shows volumes for a selected channel path | PRVOL <i>date time</i> CHANPATH ID |
| CC | shows cache control units for a selected channel path | PRCCU <i>date time</i> CHANPATH ID |
| D | displays details for the selected snapshot | PRCHPDL <i>intdate inttime grptype grpname</i> |
| H | displays snapshots that provide the history of the selected channel path | |
| I | displays a daily summarization of snapshots using the TIME command range | PRCHPD <i>intdate inttime grptype grpname</i> |
| W | displays a weekly summarization of snapshots using the TIME command range | PRCHPW <i>intdate inttime grptype grpname</i> |
| M | displays a monthly summarization of snapshots using the TIME command range | PRCHPM <i>intdate inttime grptype grpname</i> |

Example

PRCHP

displays channel paths for an interval

The interval is determined from the TIME command end date and time.

Example

PRCHP 20001109 1200

displays channel paths for an interval

The interval is determined from the user input, using 2000/11/09 as the date and 12:00 as the time.

Example

```
PRCHP * * VOLUME BAB200
```

displays channel paths for volume BAB200 in the interval that is determined from the TIME command end date and time

Example

```
PRCHP * * LCU 00BB
```

displays channel paths that are associated with LCU 00BB in the interval that is determined from the TIME command end date and time

Example

```
PRCHP 20001109 1200 VOLUME BAB200
```

displays channel paths that are associated with volume BAB200 in the interval that is determined from user input, using 2000/11/09 as the date and 12:00 as the time

Example

```
PRCHP * * TREND 0019
```

displays channel path records for channel path 0019

The records from intervals in the TIME command start date and time to end date and time range are displayed. The summary views for the day, week, and month can be used to summarize this data.

Cache Control Unit Views

Cache Control Unit tabular views display selected cache control unit records for specific dates and times. You can use optional positional parameters to limit the displayed cache control units to those that are related to a specific object.

The detail view displays the selected cache controller unit record in vertical format.

| View Type | View Name | View Invocation |
|---------------------|-----------|---|
| Tabular | PRCCU | PRCCU intdate inttime grptype grpname |
| Summarized by day | PRCCUD | PRCCUD <i>intdate inttime grptype grpname</i> |
| Summarized by week | PRCCUW | PRCCUW <i>intdate inttime grptype grpname</i> |
| Summarized by month | PRCCUM | PRCCUM <i>intdate inttime grptype grpname</i> |
| Detail | PRCCUDTL | PRCCUDTL |

| View Invocation | | | |
|--------------------|-----------------------------------|--|---------|
| Optional Input | | Valid Values | Default |
| intdate inttime | interval date/interval time | format: CCYYMMDD Specifies the date and time of the specific recording interval from which cache control units are to be obtained. Defaults to * if not specified. When * is specified or taken as the default, the TIME command end date and time are used as the interval time to be displayed. | * |

| View Invocation | | | |
|--------------------|--------------------------|---|---|
| Optional Input | | Valid Values | Default |
| grptype grpname | group type group name | <p>INTERVAL shows CCUs that are defined by a system summary record or interval record The interval date and time or the TIME command end date and time are used to determine an interval. The group name parameter is not used for this group type and when specified is ignored. If the group name parameter is not specified, INTERVAL is the default group type.</p> <p>CHANPATH shows CCUs for a specific channel path The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 4-character channel path ID.</p> <p>LCU shows CCUs for a specific LCU The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 4-character LCU ID.</p> <p>RAIDRANK shows CCUs for a specific RAID rank The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 4-character cache control unit ID.</p> <p>RVAFRAME shows CCUs for a specific RVA frame The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must contain one to four 4-character subsystem IDs.</p> <p>TREND shows CCU trending over a number of intervals The group name parameter must be a 4-character CCU ID. The TIME command start and end dates and times are used to determine the time span to report.</p> | INTERVAL (if no group name parameter is specified) |

Start and end dates and times are retrieved from the parameters in the MAINVIEW TIME command. The format of the TIME command fields is CCYYMMDD and HHMM. These TIME command fields are used only for TREND (trending) requests. The end date and time are used for the interval date and time when those parameters are specified as *.

The following actions are available on the tabular view:

| Action | Description | Hyperlink |
|--------|--|------------------------------|
| V | shows volumes for a specific CCU | PRVOL date time CCU ID |
| DR | shows RAID directors for a specific CCU | PRRDIR date time CCU ID |
| PV | shows RAID physical volumes for a specific CCU | PRVOL date time CCU ID |
| RF | shows RVA subsystem frames for a specific CCU | PRRSF date time CCU RVAFRAME |

| Action | Description | Hyperlink |
|--------|--|---|
| RR | shows RAID ranks for a specific CCU | PRRRK date time CCU ID |
| D | displays details for the selected cache control unit | PRCCUDTL |
| H | displays snapshots that provide the history of the selected cache control unit | |
| I | displays a daily summarization of snapshots using the TIME command range | PRCCUD <i>intdate inttime grptype grpname</i> |
| W | displays a weekly summarization of snapshots using the TIME command range | PRCCUW <i>intdate inttime grptype grpname</i> |
| M | displays a monthly summarization of snapshots using the TIME command range | PRCCUM <i>intdate inttime grptype grpname</i> |

Example

```
PRCCU
```

displays CCUs for an interval

The interval is determined from the TIME command end date and time.

Example

```
PRCCU 20001109 1200
```

displays CCUs for an interval

The interval is determined from the user input, using 2000/11/09 as the date and 12:00 as the time.

Example

```
PRCCU * * LCU 00BB
```

displays CCUs that are associated with LCU 00BB in the interval that is determined from the TIME command end date and time

Example

PRCCU 20001109 1200 LCU 00BB

displays CCUs associated with LCU 00BB in the interval determined from user input, using 2000/11/09 as the date and 12:00 as the time

Example

PRCCU * * TREND 0140

displays CCU records for cache controller unit 0140

The records from intervals in the TIME command start date and time to end date and time range are displayed. The summary views for the day, week, and month can be used to summarize this data.

Logical Control Unit Views

Logical Control Unit tabular views display selected logical control unit records for specific dates and times. You can use optional positional parameters to limit the displayed cache control units to those that are related to a specific object.

The detail view displays the selected logical control unit record in vertical format.

| View Type | View Name | View Invocation |
|---------------------|-----------|---|
| Tabular | PRLCU | PRLCU <i>intdate inttime grptype grpname</i> |
| Summarized by day | PRLCUD | PRLCUD <i>intdate inttime grptype grpname</i> |
| Summarized by week | PRLCUW | PRLCUW <i>intdate inttime grptype grpname</i> |
| Summarized by month | PRLCUM | PRLCUM <i>intdate inttime grptype grpname</i> |
| Detail | PRLCUDTL | PRLCUDTL |

| View Invocation | | | |
|--------------------|-----------------------------------|--|---------|
| Optional Input | | Valid Values | Default |
| intdate inttime | interval date/interval time | format: CCYYMMDD Specifies the date and time of the specific recording interval from which logical control units are to be obtained. Defaults to * if not specified. When * is specified or taken as the default, the TIME command end date and time are used as the interval time to be displayed. | * |

| View Invocation | | | | |
|--------------------|--------------------------|--------------|--|---|
| Optional Input | | Valid Values | | Default |
| grptype grpname | group type group name | INTERVAL | shows LCUs that are defined by a system summary record or interval record The interval date and time or the TIME command end date and time are used to determine an interval. The group name parameter is not used for this group type and when specified is ignored. If the group name parameter is not specified, INTERVAL is the default group type. | INTERVAL (if no group name parameter is specified) |
| | | CCU | shows LCUs for a specific cache control unit The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 4-character LCU ID. | |
| | | CHANPATH | shows LCUs for a specific channel path The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 4-character channel path ID. | |
| | | VOLUME | shows LCUs that are attached to a specific volume The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 6-character volume serial number. | |
| | | RAIDRANK | shows CCUs for a specific RAID rank The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 4-character cache control unit ID. | |
| | | TREND | shows LCU trending over a number of intervals The group name parameter must be a 4-character LCU ID. The TIME command start and end dates and times dates are used to determine the time span to report. | |

Start and end dates and times are retrieved from the parameters in the MAINVIEW TIME command. The format of the TIME command fields is CCYYMMDD and HHMM. These TIME command fields are used only for TREND (trending) requests. The end date and time are used for the interval date and time when those parameters are specified as *.

The following actions are available on the tabular view:

| Action | Description | Hyperlink |
|--------|--|------------------------|
| V | shows volumes for a specific LCU | PRVOL date time LCU ID |
| CC | shows cache control units for a specific LCU | PRCCU date time LCU ID |
| CP | shows channel paths for a specific LCU | PRCHP date time LCU ID |
| D | displays details for the selected LCU | PRLCUDTL |

| Action | Description | Hyperlink |
|--------|--|---|
| H | displays snapshots that provide the history of the selected LCU | |
| I | displays a daily summarization of snapshots using the TIME command range | PRLCUD <i>intdate inttime grptype grpname</i> |
| W | displays a weekly summarization of snapshots using the TIME command range | PRLCUW <i>intdate inttime grptype grpname</i> |
| M | displays a monthly summarization of snapshots using the TIME command range | PRLCUM <i>intdate inttime grptype grpname</i> |

Example

PRLCU

displays LCUs for an interval

The interval is determined from the TIME command end date and time.

Example

PRLCU 20001109 1200

displays LCUs for an interval

The interval is determined from the user input, using 2000/11/09 as the date and 12:00 as the time.

Example

PRLCU * * CCU 00AA

displays LCUs that are associated with cache control unit 00AA in the interval that is determined from the TIME command end date and time

Example

PRLCU * * CHANPATH 0070

displays LCUs that are associated with channel path 0070 in the interval that is determined from the TIME command end date and time

Example

PRLCU * * VOLUME BAB200

displays LCUs that are associated with volume BAB200 in the interval that is determined from the TIME command end date and time

Example

PRLCU * * VOLUME BAB200

displays LCUs that are associated with volume BAB200 in the interval that is determined from the TIME command end date and time

Example

PRLCU 20001109 1200 VOLUME BAB200

displays LCUs that are associated with volume BAB200 in the interval that is determined from user input, using 2000/11/09 as the date and 12:00 as the time

Example

PRLCU * * TREND 00AA

displays LCU records for LCU 00AA

The records from intervals in the TIME command start date and time to end date and time range are displayed. The summary views for the day, week, and month can be used to summarize this data.

Pool Views

Pool tabular views display selected pool records for specific dates and times. You can use optional positional parameters to limit the pools displayed to those that are related to a specific object. The detail view displays the selected pool record in vertical format.

| View Type | View Name | View Invocation |
|---------------------|-----------|--|
| Tabular | PRPOOL | PRPOOL <i>intdate inttime grptype grpname</i> |
| Summarized by day | PRPOOLD | PRPOOLD <i>intdate inttime grptype grpname</i> |
| Summarized by week | PRPOOLW | PRPOOLW <i>intdate inttime grptype grpname</i> |
| Summarized by month | PRPOOLM | PRPOOLM <i>intdate inttime grptype grpname</i> |
| Detail | PRPOOLDTL | PRPOOLDTL |

| View Invocation | | | |
|--------------------|-----------------------------------|--|---|
| Optional Input | | Valid Values | Default |
| intdate inttime | interval date/interval time | format: CCYYMMDD Specifies the date and time of the specific recording interval from which pools are to be obtained. Defaults to * if not specified. When * is specified or taken as the default, the TIME command end date and time are used as the interval time to be displayed. | * |
| grptype grpname | group type group name | <p>INTERVAL shows pools defined by a system summary record or interval record The interval date and time or the TIME command end date and time are used to determine an interval. The group name parameter is not used for this group type and when specified is ignored. If the group name parameter is not specified, INTERVAL is the default group type.</p> <p>TREND shows pool trending over a number of intervals The group name parameter must be an 8-character pool name. The TIME command start and end dates and times are used to determine the time span to report.</p> | INTERVAL (if no group name parameter is specified) |

Start and end dates and times are retrieved from the parameters in the MAINVIEW TIME command. The format of the TIME command fields is CCYYMMDD and HHMM. These TIME command fields are used only for TREND (trending) requests. The end date and time are used for the interval date and time when those parameters are specified as *.

The following actions are available on the tabular view:

| Action | Description | Hyperlink |
|--------|--|--|
| V | shows volumes for a specific pool | PRVOL date time pool name |
| DS | shows data sets for a specific pool | PRDS date time pool name |
| D | displays details for the selected pool | PRPOOLDTL |
| H | displays snapshots that provide the history of the selected pool | |
| I | displays a daily summarization of snapshots using the TIME command range | PRPOOLD <i>intdate inttime grptype grpname</i> |
| W | displays a weekly summarization of snapshots using the TIME command range | PRPOOLW <i>intdate inttime grptype grpname</i> |
| M | displays a monthly summarization of snapshots using the TIME command range | PRPOOLM <i>intdate inttime grptype grpname</i> |

Example

PRPOOL

displays pools for an interval

The interval is determined from the TIME command end date and time.

Example

PRPOOL 20001109 1200

displays pools for an interval

The interval is determined from the user input, using 2000/11/09 as the date and 12:00 as the time.

Example

```
PPRLCU * * TREND DEVPOOL
```

displays pool records for pool DEVPOOL

The records from intervals in the TIME command start date and time to end date and time range are displayed. The summary views for the day, week, and month can be used to summarize this data.

Volumes Views

Volume tabular views display selected volume records for specific dates and times. You can use optional positional parameters to limit the displayed volumes to those that are related to a specific object. The detail view displays the selected volume record in vertical format.

| View Type | View Name | View Invocation |
|---------------------|-----------|--|
| Tabular | PRVOL | PRVOL <i>intdate inttime grptype grpname</i> |
| Summarized by day | PRVOLD | PRVOLD <i>intdate inttime grptype grpname</i> |
| Summarized by week | PRVOLW | PRVOLW <i>intdate inttime grptype grpname</i> |
| Summarized by month | PRVOLDM | PRVOLDM <i>intdate inttime grptype grpname</i> |
| Detail | PRVOLDTL | PRVOLDTL |

| View Invocation | | | |
|--------------------|-----------------------------------|--|---|
| Optional Input | | Valid Values | Default |
| intdate inttime | interval date/interval time | format: CCYYMMDD Specifies the date and time of the specific recording interval from which volumes are to be obtained. Defaults to * if not specified. When * is specified or taken as the default, the TIME command end date and time are used as the interval time to be displayed. | * |
| grptype grpname | group type group name | <p>INTERVAL shows volumes that are defined by a system summary record or interval record The interval date and time or the TIME command end date and time are used to determine an interval. The group name parameter is not used for this group type and when specified is ignored. If the group name parameter is not specified, INTERVAL is the default group type.</p> <p>CCU shows volumes for a specific cache control unit The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 4-character CCU ID.</p> <p>CHANPATH shows volumes for a specific channel path The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 4-character channel path ID.</p> <p>DATASET shows volumes for a specific data set The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 6-character volume serial number.</p> | INTERVAL (if no group name parameter is specified) |

| View Invocation (continued) | | |
|-----------------------------|---|---------|
| Optional Input | Valid Values | Default |
| | <p>LCU shows volumes for a specific LCU The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 4-character LCU ID.</p> <p>POOL shows volumes for a specific pool The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be an 6-character pool name.</p> <p>RAIDDIR shows volumes for a specific RAID director The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 7-character RAID director ID.</p> <p>RAIDPVOL shows volumes for a specific RAID physical volume The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 9-character RAID physical volume ID (Box # + Director # + SCSI #).</p> <p>RAIDRANK shows volumes for a specific RAID rank The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 5-character RAID rank.</p> <p>RVAFRAME shows volumes for a specific RVA subsystem frame The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must contain one to four 8-character RVA frames.</p> <p>TREND shows volume trending over a number of intervals The group name parameter must be a 6-character volume serial number. The TIME command start and end dates and times are used to determine the time span to report.</p> | |

Start and end dates and times are retrieved from the parameters in the MAINVIEW TIME command. The format of the TIME command fields is CCYYMMDD and HHMM. These TIME command fields are used only for TREND (trending) requests. The end date and time are used for the interval date and time when those parameters are specified as *.

The following actions are available on the tabular view:

| Action | Description | Hyperlink |
|--------|---|-------------------------------|
| L | shows logical control units for a specific volume | PRLCU date time volume serial |
| CP | shows channel paths for a specific volume | PRCHP date time volume serial |

| Action | Description | Hyperlink |
|--------|--|---|
| DS | shows data sets for a specific volume | PRDS date time volume serial |
| PV | shows RAID physical volumes for a specific volume | PRVOL date time volume serial |
| RF | shows RVA subsystem frames for a specific volume | PRRSF date time volume serial |
| RR | shows RAID ranks for a specific volume | PRRRK date time volume serial |
| D | displays details for the selected volume | PRVOLDTL |
| H | displays snapshots that provide the history of the selected volume | |
| I | displays a daily summarization of snapshots using the TIME command range | PRVOLD <i>intdate inttime grptype grpname</i> |
| W | displays a weekly summarization of snapshots using the TIME command range | PRVOLW <i>intdate inttime grptype grpname</i> |
| M | displays a monthly summarization of snapshots using the TIME command range | PRVOLM <i>intdate inttime grptype grpname</i> |

Example

PRVOL

displays volumes for an interval

The interval is determined from the TIME command end date and time.

Example

PRVOL 20001109 1200

displays volumes for an interval

The interval is determined from the user input, using 2000/11/09 as the date and 12:00 as the time.

Example

PRVOL * * LCU 00BB

displays volumes that are associated with logical control unit 00BB in the interval that is determined from the TIME command end date and time

Example

```
PRVOL 20001109 1200 RAIDPVOL 010471AC2
```

displays volumes associated with the RAID physical volume 010471AC2

The interval is determined from user input, using 2000/11/09 as the date and 12:00 as the time.

Example

```
PRLCU * * TREND BAB200
```

displays volume records for volume BAB200

The records from intervals in the TIME command start date and time to the end date and time range are displayed. The summary views for the day, week, and month can be used to summarize this data.

Storage Class Views

Storage Class tabular views display selected storage class records for specific dates and times. You can use optional positional parameters to limit the displayed storage class views to those that are related to a specific object. The detail view displays the selected storage class record in vertical format.

| View Type | View Name | View Invocation |
|---------------------|-----------|---|
| Tabular | PRSCL | PRSCL <i>intdate inttime grptype grpname</i> |
| Summarized by day | PRSCLD | PRSCLD <i>intdate inttime grptype grpname</i> |
| Summarized by week | PRSCLW | PRSCLW <i>intdate inttime grptype grpname</i> |
| Summarized by month | PRSCLM | PRSCLM <i>intdate inttime grptype grpname</i> |
| Detail | PRSCDLTL | PRSCDLTL |

| View Invocation | | | |
|--------------------|-----------------------------------|--|---|
| Optional Input | | Valid Values | Default |
| intdate inttime | interval date/interval time | format: CCYYMMDD Specifies the date and time of the specific recording interval from which storage class are to be obtained. Defaults to * if not specified. When * is specified or taken as the default, the TIME command end date and time are used as the interval time to be displayed. | * |
| grptype grpname | group type group name | <p>INTERVAL shows storage classes defined by a system summary record or interval record The interval date and time or the TIME command end date and time are used to determine an interval. The group name parameter is not used for this group type and when specified is ignored. If the group name parameter is not specified, INTERVAL is the default group type.</p> <p>TREND shows volume trending The group name parameter must be a 8-character storage class name. The TIME command start and end dates and times are used to determine the time span to report. Displays the specified storage class over a number of intervals.</p> | INTERVAL (if no group name parameter is specified) |

Start and end dates and times are retrieved from the parameters in the MAINVIEW TIME command. The format of the TIME command fields is CCYYMMDD and HHMM. These TIME command fields are used only for TREND (trending) requests. The end date and time are used for the interval date and time when those parameters are specified as *.

The following actions are available on the tabular view:

| Action | Description | Hyperlink |
|--------|--|---|
| DS | shows data sets for a specific storage class | PRDS <i>date time storage class name</i> |
| D | displays details for the selected storage class | PRSCDLTL |
| H | displays snapshots that provide the history of the selected storage class | |
| I | displays a daily summarization of snapshots using the TIME command range | PRSCLD <i>intdate inttime grptype grpname</i> |
| W | displays a weekly summarization of snapshots using the TIME command range | PRSCLW <i>intdate inttime grptype grpname</i> |
| M | displays a monthly summarization of snapshots using the TIME command range | PRSCLM <i>intdate inttime grptype grpname</i> |

Example

PRSCL

displays storage classes for an interval

The interval is determined from the TIME command end date and time.

Example

PRSCL 20001109 1200

displays storage classes for an interval

The interval is determined from the user input, using 2000/11/09 as the date and 12:00 as the time.

Example

PRLCU * * TREND SCENG

displays storage class records for storage class SCENG

The records from intervals in the TIME command start date and time to end date and time range are displayed. The summary views for the day, week, and month can be used to summarize this data.

Data Set Views

Data set tabular views display data set records for specific dates and times. You can use optional positional parameters to limit the displayed data sets to those that are related to a specific object. The detail view displays the selected data set record in vertical format.

| View Type | View Name | View Invocation |
|---------------------|-----------|--|
| Tabular | PRDS | <i>PRDS intdate inttime grptype grpname</i> |
| Summarized by day | PRDSD | <i>PRDSD intdate inttime grptype grpname</i> |
| Summarized by week | PRDSW | <i>PRDSW intdate inttime grptype grpname</i> |
| Summarized by month | PRDSM | <i>PRDSM intdate inttime grptype grpname</i> |
| Detail | PRDSDTL | PRDSDTL |

| View Invocation | | | |
|--------------------|-----------------------------------|--|---------|
| Optional Input | | Valid Values | Default |
| intdate inttime | interval date/interval time | format: CCYYMMDD Specifies the date and time of the specific recording interval from which data sets are to be obtained. Defaults to * if not specified. When * is specified or taken as the default, the TIME command end date and time are used as the interval time to be displayed. | * |

| View Invocation (continued) | | | | |
|-----------------------------|--------------------------|--------------|--|---|
| Optional Input | | Valid Values | | Default |
| grptype grpname | group type group name | INTERVAL | shows data sets defined by a system summary record or interval record The interval date and time or the TIME command end date and time are used to determine an interval. The group name parameter is not used for this group type and when specified is ignored. If the group name parameter is not specified, INTERVAL is the default group type. | INTERVAL (if no group name parameter is specified) |
| | | JOB | shows data sets for a specific job The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be an 8-character job name and 8-character job reader time. | |
| | | POOL | shows data sets for a specific pool The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be an 6-character pool name. | |
| | | STORCLAS | shows data sets for a specific storage class The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be an 8-character storage class name. | |
| | | VOLUME | shows data sets for a specific volume The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 6-character volume serial number. | |
| | | TREND | shows data set trending The group name parameter must be a 8-character data set index number. The TIME command start and end dates and times are used to determine the time span to report. Displays the specified data set over a number of intervals. | |

Start and end dates and times are retrieved from the parameters in the MAINVIEW TIME command. The format of the TIME command fields is CCYYMMDD and HHMM. These TIME command fields are used only for TREND (trending) requests. The end date and time are used for the interval date and time when those parameters are specified as *.

The following actions are available on the tabular view:

| Action | Description | Hyperlink |
|--------|---|--------------------------------|
| J | shows jobs for a selected data set | PRJOB date time data set index |
| V | shows volumes for a selected data set | PRVOL date time data set index |
| SC | shows the storage class for a selected data set | PRSCL date time data set index |

| Action | Description | Hyperlink |
|--------|--|--|
| D | displays details for the selected data set | PRDSDL |
| H | displays snapshots that provide the history of the selected data set | |
| I | displays a daily summarization of snapshots using the TIME command range | PRDSD <i>intdate inttime grptype grpname</i> |
| W | displays a weekly summarization of snapshots using the TIME command range | PRDSW <i>intdate inttime grptype grpname</i> |
| M | displays a monthly summarization of snapshots using the TIME command range | PRDSM <i>intdate inttime grptype grpname</i> |

Example

PRDS

displays data sets for an interval

The interval is determined from the TIME command end date and time.

Example

PRDS * * POOL ABBAB3

displays data sets that are associated with pool ABBAB3 for the interval that is determined from the TIME command end date and time.

Example

PRDS 20001109 1200

displays data sets for an interval

The interval is determined from the user input, using 2000/11/09 as the date and 12:00 as the time.

Example

PRDS 20001109 1200 STORCLAS SCENG

displays data sets associated with the storage class SCENG

The interval is determined from user input, using 2000/11/09 as the date and 12:00 as the time.

Example

PRDS * * TREND 0000003C

displays data set records for the data set index number 0000003C

The records from intervals in the TIME command start date and time to end date and time range are displayed. The summary views for the day, week, and month can be used to summarize this data.

Job Views

Job tabular views display selected job records for specific dates and times. You can use optional positional parameters to limit the displayed jobs to those that are related to a specific object. The detail view displays the selected job record in vertical format.

| View Type | View Name | View Invocation |
|---------------------|-----------|---|
| Tabular | PRJOB | PRJOB <i>intdate inttime grptype grpname</i> |
| Summarized by day | PRJOB | PRJOB <i>intdate inttime grptype grpname</i> |
| Summarized by week | PRJOBW | PRJOBW <i>intdate inttime grptype grpname</i> |
| Summarized by month | PRJOBM | PRJOBM <i>intdate inttime grptype grpname</i> |
| Detail | PRJOBCTL | PRJOBCTL |

| View Invocation | | | |
|--------------------|-----------------------------------|--|---|
| Optional Input | | Valid Values | Default |
| intdate inttime | interval date/interval time | format: CCYYMMDD Specifies the date and time of the specific recording interval from which jobs are to be obtained. Defaults to * if not specified. When * is specified or taken as the default, the TIME command end date and time are used as the interval time to be displayed. | * |
| grptype grpname | group type group name | <p>INTERVAL shows jobs defined by a system summary record or interval record The interval date and time or the TIME command end date and time are used to determine an interval. The group name parameter is not used for this group type and when specified is ignored. If the group name parameter is not specified, INTERVAL is the default group type.</p> <p>DATASET shows jobs for a specific data set The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be an 8-character data set index number.</p> <p>TREND shows job trending The group name parameter must be a 8-character job name and an 8-character job reader time. The TIME command start and end dates and times are used to determine the time span to report. Displays the specified job over a number of intervals.</p> | INTERVAL (if no group name parameter is specified) |

Start and end dates and times are retrieved from the parameters in the MAINVIEW TIME command. The format of the TIME command fields is CCYYMMDD and HHMM. These TIME command fields are used only for TREND (trending) requests. The end date and time are used for the interval date and time when those parameters are specified as *.

The following actions are available on the tabular view:

| Action | Description | Hyperlink |
|--------|--|---|
| DS | shows data sets for a specific job | PRDS <i>date time job name and an 8-character job reader time</i> |
| D | displays details for the selected job | PRJOBCTL |
| H | displays snapshots that provide the history of the selected job | |
| I | displays a daily summarization of snapshots using the TIME command range | PRJOBID <i>intdate inttime grptype grpname</i> |
| W | displays a weekly summarization of snapshots using the TIME command range | PRJOBW <i>intdate inttime grptype grpname</i> |
| M | displays a monthly summarization of snapshots using the TIME command range | PRJOBM <i>intdate inttime grptype grpname</i> |

Example

PRJOB

displays jobs for an interval

The interval is determined from the TIME command end date and time.

Example

PRJOB 20001109 1200

displays jobs for an interval

The interval is determined from the user input, using 2000/11/09 as the date and 12:00 as the time.

Example

PRJOB 20001109 1200 DATASET 0000003C

displays jobs associated with the data set index number 0000003C in the interval is determined from user input, using 2000/11/09 as the date and 12:00 as the time.

Example

PRJOB * * TREND ANTMAIN 0028599B

displays job records for job ANTMAIN 0028599B

The records from intervals in the TIME command start date and time to end date and time range are displayed. The summary views for the day, week, and month can be used to summarize this data.

RAID Performance Views

To access the RAID Performance views

» From the EZSRM Menu, select **Performance**.

The EZSGP menu is displayed, as shown in Figure 6-1 on page 6-6.

Table 6-2 describes the RAID Performance views. View invocation and actions are described on the following pages.

Table 6-2 RAID Performance Views

| View | Description | View Name |
|----------------------|--|---|
| RAID director | displays a selected RAID director record for a specific date and time | PRRDIR PRRDIRD PRRDIRW PRRDIRM PRRDIRD |
| RAID physical volume | displays a selected RAID physical volume record for a specific date and time | PRPVOL PRPVOLD PRPVOLW PRPVOLM PRPVOLDL |
| RVA subsystem frame | displays a selected RVA record for a specific date and time | PRRSF PRRSFD PRRSFW PRRSFM PRRSFDTL |
| RAID ranks | displays information on RAID rank performance for the selected time period | PRRRK PRRRLD PRRRKW PRRRKM PRRRKDTL |

RAID Director Views

RAID director tabular views display selected RAID director records for specific dates and times. You can use optional positional parameters to limit the displayed RAID directors to those that are related to a specific object. The detail view displays the selected RAID director record in vertical format.

A director is a card that occupies one slot in the Symmetrix backplane. There are front end directors (EA for ESCON Adapter, CA for Channel Adapter) and disk directors (DA for DASD). The front-end director handles I/O from the host, determines if a request can be satisfied out of Symmetrix cache memory, and maintains data in the cache based on data access patterns. On a write request, the front-end director writes data to the cache. A disk director manages a number of physical disks. These directors move data between the cache and the appropriate physical disks and devices.

| View Type | View Name | View Invocation |
|---------------------|-----------|--|
| Tabular | PRRDIR | <i>PRRDIR intdate inttime grptype grpname</i> |
| Summarized by day | PRRDIRD | <i>PRRDIRD intdate inttime grptype grpname</i> |
| Summarized by week | PRRDIRW | <i>PRRDIRW intdate inttime grptype grpname</i> |
| Summarized by month | PRRDIRM | <i>PRRDIRM intdate inttime grptype grpname</i> |
| Detail | PRRDIRDTL | PRRDIRDTL |

| View Invocation | | | |
|--------------------|-----------------------------------|---|---------|
| Optional Input | | Valid Values | Default |
| intdate inttime | interval date/interval time | format: CCYYMMDD Specifies the date and time of the specific recording interval from which RAID directors are to be obtained. Defaults to * if not specified. When * is specified or taken as the default, the TIME command end date and time are used as the interval time to be displayed. | * |

| View Invocation | | | | |
|--------------------|--------------------------|--------------|---|---|
| Optional Input | | Valid Values | | Default |
| grptype grpname | group type group name | INTERVAL | shows RAID directors defined by a system summary record or interval record The interval date and time or the TIME command end date and time are used to determine an interval. The group name parameter is not used for this group type and when specified is ignored. If the group name parameter is not specified, INTERVAL is the default group type. | INTERVAL (if no group name parameter is specified) |
| | | CCU | shows RAID directors for a specific cache control unit The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 5-character RAID box serial number. | |
| | | TREND | shows RAID director trending The group name parameter must be a 7-character RAID director ID (Box Serial # + Director #). The TIME command start and end dates and times are used to determine the time span to report. Displays the specified RAID director over a number of intervals. | |

Start and end dates and times are retrieved from the parameters in the MAINVIEW TIME command. The format of the TIME command fields is CCYYMMDD and HHMM. These TIME command fields are used only for TREND (trending) requests. The end date and time are used for the interval date and time when those parameters are specified as *.

The following actions are available on the tabular view:

| Action | Description | Hyperlink |
|--------|--|--|
| V | shows volumes for a specific RAID director | PRVOL date time volume serial |
| PV | shows RAID physical volumes for a specific RAID director | PRPVOL date time RAID director |
| D | displays details for the selected RAID director | PRRDIRDTL |
| H | displays snapshots that provide the history of the selected RAID director | |
| I | displays a daily summarization of snapshots using the TIME command range | PRRDIRD <i>intdate inttime grptype grpname</i> |
| W | displays a weekly summarization of snapshots using the TIME command range | PRRDIRW <i>intdate inttime grptype grpname</i> |
| M | displays a monthly summarization of snapshots using the TIME command range | PRRDIRM <i>intdate inttime grptype grpname</i> |

Example

PRRDIR

displays RAID directors for an interval

The interval is determined from the TIME command end date and time.

Example

PRRDIR 20001109 1200

displays RAID directors for an interval

The interval is determined from the user input, using 2000/11/09 as the date and 12:00 as the time.

Example

PRRDIR * * CCU 010471A

displays RAID director 010471A associated with a cache control unit from the interval determined from the TIME command end date and time

Example

```
PRRDIR * * TREND 010471A
```

displays RAID director records for director LCU 010471A

The records from intervals in the TIME command start date and time to end date and time range are displayed. The summary views for the day, week, and month can be used to summarize this data.

RAID Physical Volume Views

RAID Physical Volume tabular views display selected RAID physical volume records for specific dates and times. You can use optional positional parameters to limit the displayed RAID physical volumes to those that are related to a specific object. The detail view displays selected RAID physical volume record in vertical format.

Multiple physical disks are controlled by a DASD director, which is identified by the director number. The SCSI ID field defines the path from the DASD director to the physical disk.

| View Type | View Name | View Invocation |
|---------------------|-----------|--|
| Tabular | PRPVOL | PRPVOL <i>intdate inttime grptype grpname</i> |
| Summarized by day | PRPVOLD | PRPVOLD <i>intdate inttime grptype grpname</i> |
| Summarized by week | PRPVOLW | PRPVOLW <i>intdate inttime grptype grpname</i> |
| Summarized by month | PRPVOLM | PRPVOLM <i>intdate inttime grptype grpname</i> |
| Detail | PRPVOLDTL | PRPVOLDTL |

| View Invocation | | | |
|--------------------|-----------------------------------|--|---------|
| Optional Input | | Valid Values | Default |
| intdate inttime | interval date/interval time | format: CCYYMMDD Specifies the date and time of the specific recording interval from which RAID physical volumes are to be obtained. Defaults to * if not specified. When * is specified or taken as the default, the TIME command end date and time are used as the interval time to be displayed. | * |

| View Invocation | | | | |
|--------------------|--------------------------|--------------|---|---|
| Optional Input | | Valid Values | | Default |
| grptype grpname | group type group name | INTERVAL | shows RAID physical volumes that are defined by a system summary record or interval record The interval date and time or the TIME command end date and time are used to determine an interval. The group name parameter is not used for this group type and when specified is ignored. If the group name parameter is not specified, INTERVAL is the default group type. | INTERVAL (if no group name parameter is specified) |
| | | CCU | shows RAID physical volumes for a specific cache control unit The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 5-character RAID box serial number. | |
| | | RAIDDIR | shows RAID physical volumes for a specific RAID director The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 7-character RAID director ID (Box # + Director #). | |
| | | VOLUME | shows RAID physical volumes for a specific volume The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 9-character RAID physical volume serial number (Box # + Director # + SCSI #). | |
| | | TREND | shows RAID physical volume trending The group name parameter must be a 9-character RAID physical volume ID. The TIME command start and end dates and times are used to determine the time span to report. Displays the specified RAID physical volume over a number of intervals. | |

Start and end dates and times are retrieved from the parameters in the MAINVIEW TIME command. The format of the TIME command fields is CCYYMMDD and HHMM. These TIME command fields are used only for TREND (trending) requests. The end date and time are used for the interval date and time when those parameters are specified as *.

The following actions are available on the tabular view:

| Action | Description | Hyperlink |
|--------|--|--|
| V | shows volumes for a specific RAID physical volume | PRVOL <i>date time RAID physical volume ID</i> |
| D | displays details for the selected RAID physical volume | PRPVOLDTL |
| H | displays snapshots that provide the history of the selected RAID physical volume | |

| Action | Description | Hyperlink |
|--------|--|--|
| I | displays a daily summarization of snapshots using the TIME command range | PRPVOLD <i>intdate inttime grptype grpname</i> |
| W | displays a weekly summarization of snapshots using the TIME command range | PRPVOLW <i>intdate inttime grptype grpname</i> |
| M | displays a monthly summarization of snapshots using the TIME command range | PRPVOLM <i>intdate inttime grptype grpname</i> |

Example

```
PRPVOL
```

displays RAID physical volumes for an interval

The interval is determined from the TIME command end date and time.

Example

```
PRPVOL 20001109 1200
```

displays RAID physical volumes for an interval

The interval is determined from the user input, using 2000/11/09 as the date and 12:00 as the time.

Example

```
PRPVOL * * CCU 01047
```

displays RAID physical volume 01047 associated with a cache control unit for the interval determined from the TIME command end date and time

Example

```
PRPVOL * * RAIDDIR 010471A
```

displays RAID physical volume 010471A associated with a specific RAID director

The interval is determined from the TIME command end date and time

Example

```
PRPVOL 20001109 1200 VOLUME 101471AC2
```

displays RAID physical volume records associated with a specific volume

The interval is determined from the user input, using 2000/11/09 as the date and 12:00 as the time.

Example

```
PRPVOL * * TREND 101471AC2
```

displays RAID physical volume records for RAID director volume 101471AC2

The records from intervals in the TIME command start date and time to end date and time range are displayed. The summary views for the day, week, and month can be used to summarize this data.

RVA Subsystem Frame Views

RVA Subsystem Frame tabular views display selected RVA records for specific dates and times. You can use optional positional parameters to limit the displayed RVA subsystem frames to those that are related to a specific object. The detail view displays the selected RVA subsystem frame record in vertical format.

| View Type | View Name | View Invocation |
|---------------------|-----------|---|
| Tabular | PRRSF | <i>PRRSF intdate inttime grptype grpname</i> |
| Summarized by day | PRRSFD | <i>PRRSFD intdate inttime grptype grpname</i> |
| Summarized by week | PRRSFW | <i>PRRSFW intdate inttime grptype grpname</i> |
| Summarized by month | PRRSFM | <i>PRRSFM intdate inttime grptype grpname</i> |
| Detail | PRRSFDTL | PRRSFDTL |

| View Invocation | | | |
|--------------------|-----------------------------------|---|---------|
| Optional Input | | Valid Values | Default |
| intdate inttime | interval date/interval time | format: CCYYMMDD Specifies the date and time of the specific recording interval from which RVA subsystem frames are to be obtained. Defaults to * if not specified. When * is specified or taken as the default, the TIME command end date and time are used as the interval time to be displayed. | * |

| View Invocation | | | | |
|--------------------|--------------------------|--------------|---|---|
| Optional Input | | Valid Values | | Default |
| grptype grpname | group type group name | INTERVAL | shows RVA subsystem frames defined by a system summary record or interval record The interval date and time or the TIME command end date and time are used to determine an interval. The group name parameter is not used for this group type and when specified is ignored. If the group name parameter is not specified, INTERVAL is the default group type. | INTERVAL (if no group name parameter is specified) |
| | | CCU | shows RVA subsystem frames for a specific cache control unit The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be an 8-character RVA subsystem frame name. | |
| | | VOLUME | shows RVA subsystem frames for a specific volume The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be an 8-character RVA subsystem frame name. | |
| | | TREND | shows RVA subsystem frame trending The group name parameter must be an 8-character RVA subsystem frame name. The TIME command start and end dates and times are used to determine the time span to report. Displays the specified RVA subsystem frame over a number of intervals. | |

Start and end dates and times are retrieved from the parameters in the MAINVIEW TIME command. The format of the TIME command fields is CCYYMMDD and HHMM. These TIME command fields are used only for TREND (trending) requests. The end date and time are used for the interval date and time when those parameters are specified as *.

The following actions are available on the tabular view:

| Action | Description | Hyperlink |
|--------|---|---|
| V | shows volumes for a specific RVA subsystem frame | PRVOL date time RVA subsystem frame ID |
| CC | shows cache control units for a specific RVA subsystem frame | PRCCU date time RVA subsystem frame ID |
| D | displays details for the selected RVA subsystem frame | PRRSFDTL |
| H | displays snapshots that provide the history of the selected RVA subsystem frame | |
| I | displays a daily summarization of snapshots using the TIME command range | PRRSFD <i>intdate inttime grptype grpname</i> |
| W | displays a weekly summarization of snapshots using the TIME command range | PRRSFW <i>intdate inttime grptype grpname</i> |
| M | displays a monthly summarization of snapshots using the TIME command range | PRRSFM <i>intdate inttime grptype grpname</i> |

Example

PRRSF

displays RVA subsystem frames for an interval

The interval is determined from the TIME command end date and time.

Example

PRRSF 20001109 1200

displays RVA subsystem frames for an interval

The interval is determined from the user input, using 2000/11/09 as the date and 12:00 as the time.

Example

PRRSF * * CCU RVAFN1

displays RVA subsystem frame RVAFN1 associated with a cache control unit for the interval determined from the TIME command end date and time

Example

PPRRSF 20001109 1200 VOLUME RVAFN1

displays RVA subsystem frame records associated with a specific volume

The interval is determined from the user input, using 2000/11/09 as the date and 12:00 as the time.

Example

PPRRSF * * TREND RVAFN1

displays RVA subsystem frame records for RAID director volume RVA subsystem frame RVAFN1

The records from intervals in the TIME command start date and time to end date and time range are displayed. The summary views for the day, week, and month can be used to summarize this data.

RAID Rank Views

RAID rank tabular views display selected RAID rank performance for specific dates and times. You can use optional positional parameters to limit the displayed RAID ranks to those that are related to a specific object. The detail view displays the selected RAID rank record in vertical format.

| View Type | View Name | View Invocation |
|---------------------|-----------|---|
| Tabular | PRRRK | <i>PRRRK intdate inttime grptype grpname</i> |
| Summarized by day | PRRRKD | <i>PRRRKD intdate inttime grptype grpname</i> |
| Summarized by week | PRRRKW | <i>PRRRKW intdate inttime grptype grpname</i> |
| Summarized by month | PRRRKM | <i>PRRRKM intdate inttime grptype grpname</i> |
| Detail | PRRRKDTL | PRRRKDTL |

| View Invocation | | | |
|--------------------|-----------------------------------|---|---------|
| Optional Input | | Valid Values | Default |
| intdate inttime | interval date/interval time | format: CCYYMMDD Specifies the date and time of the specific recording interval from which RAID ranks are to be obtained. Defaults to * if not specified. When * is specified or taken as the default, the TIME command end date and time are used as the interval time to be displayed. | * |

| View Invocation | | | | |
|--------------------|--------------------------|--------------|---|---|
| Optional Input | | Valid Values | | Default |
| grptype grpname | group type group name | INTERVAL | shows RAID ranks defined by a system summary record or interval record The interval date and time or the TIME command end date and time are used to determine an interval. The group name parameter is not used for this group type and when specified is ignored. If the group name parameter is not specified, INTERVAL is the default group type. | INTERVAL (if no group name parameter is specified) |
| | | CCU | shows RAID ranks for a specific cache control unit The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 5-character RAID rank ID. | |
| | | VOLUME | shows RAID ranks for a specific volume The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 5-character RAID rank ID. | |
| | | TREND | shows RAID rank trending The group name parameter must be a 5-character RAID rank name. The TIME command start and end dates and times are used to determine the time span to report. Displays the specified RAID rank over a number of intervals. | |

Start and end dates and times are retrieved from the parameters in the MAINVIEW TIME command. The format of the TIME command fields is CCYYMMDD and HHMM. These TIME command fields are used only for TREND (trending) requests. The end date and time are used for the interval date and time when those parameters are specified as *.

The following actions are available on the tabular view:

| Action | Description | Hyperlink |
|--------|--|---|
| V | shows volumes for a specific RAID rank | PRVOL <i>date time RAID rank ID</i> |
| CC | shows cache control units for a specific RAID rank | PRCCU <i>date time RAID rank ID</i> |
| D | displays details for the selected RAID rank | PRRRKDTL |
| H | displays snapshots that provide the history of the selected RAID rank | |
| I | displays a daily summarization of snapshots using the TIME command range | PRRRKD <i>intdate inttime grptype grpname</i> |
| W | displays a weekly summarization of snapshots using the TIME command range | PRRRKW <i>intdate inttime grptype grpname</i> |
| M | displays a monthly summarization of snapshots using the TIME command range | PRRRKM <i>intdate inttime grptype grpname</i> |

Example

PRRSF

displays RAID ranks for an interval

The interval is determined from the TIME command end date and time.

Example

PRRSF 20001109 1200

displays RAID ranks for an interval

The interval is determined from the user input, using 2000/11/09 as the date and 12:00 as the time.

Example

PRRSF * * CCU 00300

displays RAID rank 00300 associated with a cache control unit for the interval determined from the TIME command end date and time

Example

PRRSF 20001109 1200 VOLUME 00300

displays RAID rank records associated with a specific volume

The interval is determined from the user input, using 2000/11/09 as the date and 12:00 as the time.

Example

PRRSF * * TREND 00300

displays RAID rank records for RAID director volume RAID rank 00300

The records from intervals in the TIME command start date and time to end date and time range are displayed. The summary views for the day, week, and month can be used to summarize this data.

Chapter 7 Workbench

This chapter describes the workbench tools that StorageGUARD provides to simplify the following daily DASD housekeeping. The following information is included:

| | |
|---|------|
| Overview | 7-1 |
| High-Level Qualifier View | 7-4 |
| Catalog Super Locate View | 7-5 |
| VTOC Scan Facility | 7-8 |
| VTOC Scan Facility Collection | 7-8 |
| VTOC Scan Facility Views | 7-8 |
| VTOC Data Set-Level Statistics View | 7-9 |
| VTOC Volume-Level Statistics View | 7-10 |

Overview

The MAINVIEW SRM Workbench provides a set of real-time data set-level and VTOC-level views to simplify the following daily DASD housekeeping functions:

- HLQ (High-Level Qualifier)
- Catalog Super Locate
- VTOC Scan Facility

A powerful search engine drives this component and uses the tabular display facility. With these reports and utilities, you can locate problem data sets and take action if necessary. You can inspect data sets from the catalog and VTOC viewpoints.

To access MAINVIEW SRM Workbench

Step 1 From the EZSRM Menu, select **Workbench**.

The Workbench menu is displayed in a pop-up menu in the center of the EZSRM view, as shown in Figure 7-1. View invocation and actions are described on the following pages.

Tip: You can use the EZcmd menu to hyperlink to another view rather than the action line command. See the *MAINVIEW SRM User Guide* for details.

Power users can gain functionality by using *primary action commands*. Primary action commands are described in the online help. They appear in reverse video to indicate that you can hyperlink to a detailed description of the command that includes specific arguments used in the command.

Figure 7-1 Workbench Pop-up Menu

```

14MAY2001 11:03:48 ----- INFORMATION DISPLAY -----
COMMAND ==>
CURR WIN ==> 1          ALT WIN ==>
>W1 =EZSRM===EZSRMW===SJSG=====14MAY2001==11:03:44===MVSRM===D===1
                                EZSRM  Menu

SRM Real Time Monitor          SRM Historical Data
+ Workbench =====+
. Pools                        . HLQ                      . > Historical Space
. SMS Storage Groups          . Catalog Super Locate. . > Historical Performance
. SMS Pools                   . VTOC Reporting        . > EasyHSM
> RAID Configurations         . Return...             . > SGControl Applications
> Storage Performance         +-----+                . > SMF Report Library

SRM Administration            SRM Tools and Menus
> Parmlib Members             . Workbench
. Functions                   . MVSRM View List
. SRM Component Status        . MVSRM Batch Reports
                               . MainView Messages
                               . Return....

```

Step 2 Select the menu option of your choice. For HLQ and Catalog Super Locate, a data entry panel is displayed in which you can filter the data you want to see.

Step 3 To filter data, complete the fields provided on the data entry panel.

Step 4 Type **S** to the left of the **<==** symbol to process the request.

Table 7-1 describes the options that are available from the Workbench menu.

Table 7-1 Workbench Views

| View | Description | View Name |
|----------------------|--|------------------|
| HLQ | lists all high-level qualifiers in the catalog The master catalog is read and a list is compiled of all high-level qualifiers. This option can be used as a utility to search for entries in a top-down manner. | WBHLQ |
| Catalog Super Locate | provides an enhanced facility that replaces ISPF 3.4 and ISMF Data Set Services, comprising the best of both worlds with increased ease of use and flexibility | WBSL |
| VTOC Reporting | displays information on the DASD volume, such as the volume serial number, mount type, percentage full, number of free DSCBs, free space, and so on | WBVTOC |

High-Level Qualifier View

The High-Level Qualifier view provides a top-down view of the catalog entries. If you want to search for specific entries and are not completely sure the high-level qualifier, you can search each high-level qualifier individually, instead of searching the entire catalog structure. When you select the view from the EZSRM menu, a dialog box is displayed to allow you to specify a high-level qualifier or mask.

After a list of high-level qualifiers is displayed, you can focus on a specific high-level qualifier by using either the S or XS action line command. The S action line command displays a list of data set names and displayed data set types for that high-level qualifier. If you want to narrow the list of data set names or expand the amount of information for the selected data sets, use the XS command. It presents you with the Catalog Super Locate panel on which you can alter the catalog search options.

| View Type | View Name | View Invocation |
|-----------|-----------|-----------------|
| Tabular | WBHLQ | WBHLQ hlq |

The following actions are available on the tabular view:

| Action | Description |
|--------|---|
| S | select Invokes 'WBSL hlq/ all yes' This option displays a super-locate list of all data sets that start with the high-level qualifier. Defaults: data set type = All migrated data set = Yes |
| XS | extended select invokes "WBSL hlq/" This command is the same as the select command except that it allows you to override the data set type and migrated data sets. |
| CL | catalog list displays catalog information for the data set |

Catalog Super Locate View

The Catalog Super Locate view scans the catalog(s) for data sets with the search criteria you specify either in the dialog box that is displayed from the EZSRM menu or as a qualifier for view invocation. A list of data sets is displayed from which you can take further action. The Catalog Super Locate view contains the best features of ISPF DSLIST (3.4) and ISFM Data Set Services. It combines them into a single view.

The information that is displayed by Catalog Super Locate depends on the initial display setting. The least amount of information is returned with the DSN setting, which returns only the data set name and data set type. TOTAL returns the most information, including data set attributes. The data set type, allocation information, and space information. If the data set spans multiple volumes, the TOTAL setting adds a row for each volume to show you allocation statistics on a volume-by-volume basis. This approach allows you to find quickly the data sets that interest you: first use DSN, and then use TOTAL to reissue the catalog locate on only those data sets. This approach maximizes your time and system resources.

| View Type | View Name | View Invocation |
|-----------|-----------|------------------------------------|
| Tabular | WBSL | WBSL <i>dsname dstype migrated</i> |

| View Invocation | | |
|-----------------|---|---------|
| Optional Input | Valid Values | Default |
| dsname | data set name level or data set filter All qualifiers can participate in the data set name filter. If the high-level qualifier contains wildcard characters that span more than 10 high-level qualifiers, you are presented with a confirmation panel before the search begins. | none |
| dstype | data set type - catalog type ALL displays all catalog entries VSAM displays only VSAM data sets NONVSAM displays only non-VSAM data sets, including PDSEs and striped data sets PAGE displays only system paging data sets CATALOG displays only data sets that are defined as catalog data sets OTHER displays any data set type that is not included in one of the other categories These data set types include GDG definitions, VVDS definitions (if cataloged), and others. | ALL |

| View Invocation (continued) | | |
|-----------------------------|--|---------|
| Optional Input | Valid Values | Default |
| migrated | <p>migrated data sets</p> <p>Indicates that the Catalog Super Locate view should not include any migrated data sets in the data set list. Migrated data sets are determined by the volume name of MIGRAT or ARCIVE</p> <p>YES includes migrated data sets</p> <p>NO excludes migrated data sets</p> <p>ONLY displays only migrated data sets</p> | Yes |

The following actions are available on the tabular view:

| Action | Description | Action Performed |
|--------|---------------------|---|
| B | Browse | invokes standard ISPF browse for the selected data set. For the data set to be browsable, it must adhere to ISPF Browse data set restrictions. |
| BV | Backup Versions | lists all backup versions recorded in the BCDS for a particular data set |
| CL | Catalog List | calls IDCAMS with a LISTCAT ALL request The resulting IDCAMS output is available to you in an ISPF EDIT session where you can view or modify the output to suit your needs. |
| CO | Data Set Copy | assists you in constructing a DFDSS job stream to copy a data set |
| DEL | Delete Data Set | deletes and uncatalogs the selected data set If the data set is migrated, a DFHSM HDELETE request is performed instead to delete the migrated version |
| E | Edit | invokes standard ISPF Edit for the selected data set For the data set to be edited, it must adhere to ISPF Edit data set restrictions. |
| F | Partial Release | freed unused space in a data set, PDS, or PDSE For example, if a data set is allocated at 100 tracks but is using only 60 tracks, the free action releases the 40 tracks that are not being used. If the data set had been allocated in cylinders, all tracks beyond the last used cylinder would have been freed. |
| HBA | DFHSM Backup | schedules an HBACKDS request to the DFHSM region This action allows you to direct DFHSM to make an immediate backup of a data set without having to wait for the automated backup procedures to run. |
| HBD | DFHSM Delete Backup | Schedules a DFHSM HBDELETE command to the DFHSM system. This action allows you to delete all backups or a specific backup version for a data set. |
| HMI | DFHSM Migrate | schedules an HMIGRATE command to move a data set to ML1 or ML2 Additionally, you use this command to move a data set from ML1 to ML2. |
| HRC | DFHSM Recover | restores a data set from either the most current backup or a specific backup version The data set does not need to be cataloged for the recovery to occur. |

| Action | Description | Action Performed |
|--------|----------------------|---|
| HRE | DFHSM Recall | recalls a DFHSM migrated data set from either ML1 or ML2 back to disk You can schedule the request in the background or wait for the recall to complete. |
| I | Data Set Information | displays detailed data set information You see different panels and statistics depending on the location and type of data set. For DFHSM-migrated data sets, detailed information is displayed about the migrated data set, such as the location (ML1 or ML2) and how long the data set was at ML1 before it is migrated to ML2. |
| UC | Uncatalog Data Set | removes the data set from the catalog This function is valid only for non-SMS data sets. |
| V | VTOC Dump | displays a formatted dump of the VTOC entry for the data set |
| VIN | Volume Information | displays volume-level information for the volume on which the data set resides |
| Z | Compress | initiates a PDS-compression function for the data set |

VTOC Scan Facility

This sections describes how to set up the VTOC Scan Facility collector and view VTOC statistics.

VTOC Scan Facility Collection

The VTOC scan collection code resides in the MAINVIEW SRM SVOS PAS. You can initiate a VTOC scan using the following system MODIFY command:

```
/SVOS VSCAN,SUF=xx  
      xx is the suffix of the SMVSCFxx parmlib member to use in the scan
```

You can also initiate a VTOC scan using an primary line command on the VTOC scan output data set view.

Refer to the *MAINVIEW SRM Reference Summary* for SMVSCFxx parameter descriptions. For information about the SVOS PAS and parmlib members, see the *MAINVIEW SRM User Guide and Reference*.

The output of the collection is written to a sequential data set, where it is available for viewing.

VTOC Scan Facility Views

The VTOC Scan collection view, WBVTOC, is the initial view that is displayed. WBVTOC view shows one row per VTOC scan output data set and one row per in-flight or aborted VTOC scan. Each row displays a summary of the output data set contents and the search criteria that were used to populate the data set. From the WBVTOC view, you can select a data set for data set-level statistics viewing, volume-level statistics viewing, or data set (VTOC scan output data set) deletion.

| View Type | View Name | View Invocation |
|-----------|-----------|-----------------|
| tabular | WBVTOC | WBVTOC |

From the WBVTOC scan collection view, you can initiate a scan through the VSCAN primary line command:

VSCAN *xx*

xx is the suffix of the SMVSCF*xx* parmlib member containing the VTOC scan filter criteria. If *xx* is omitted, the default is 00.

The following actions are available on the tabular view:

| Action | Description | Action Performed | Hyperlink |
|--------|---------------------|---|-----------|
| B | Browse | browses the filter parmlib member | |
| D | Data Set Statistics | displays data set level statistics for the selected row | WBVTOCD |
| DEL | Delete | deletes the collection data set or removes the aborted scan entry | |
| E | Edit | edits the filter parmlib member | |
| G | Summary | retrieves the summary record from the collection data set | |
| V | Volume | displays volume-level statistics | WBVTOCV |

VTOC Data Set-Level Statistics View

The VTOC data set-level statistics view displays the data set information about selected data sets.

| View Type | View Name | View Invocation |
|-----------|-----------|-----------------|
| tabular | WBVTOCD | WBVTOCD |

The following actions are available on the tabular view:

| Action | Description | Action Performed |
|--------|-----------------|---|
| B | Browse | browses the data set |
| BV | Backup Versions | lists all backup versions that are recorded in the BCDS for a particular data set |
| CL | Catalog List | calls IDCAMS with a LISTCAT ALL request The resulting IDCAMS output is available to you in an ISPF EDIT session where you can view or modify the output to suit your needs. |
| DEL | Delete Data Set | deletes and uncatalogs the selected data set If the data set is migrated, a DFHSM HDELETE is performed instead to delete the migrated version |
| E | Edit | edits the data set |
| F | Partial Release | freed unused space in a data set, PDS, or PDSE For example, if a data set is allocated at 100 tracks but is using only 60 tracks, the free action releases the 40 tracks that are not being used. If the data set had been allocated in cylinders, all tracks beyond the last used cylinder would have been freed. |

| Action | Description | Action Performed |
|--------|----------------------|---|
| HBA | DFHSM Backup | schedules a HBACKDS request to the DFHSM region This allows you to direct DFHSM to make an immediate backup of a data set without having to wait for the automated backup procedures to run. |
| HBD | DFHSM Delete Backup | schedules a DFHSM HBDELETE command to the DFHSM system This action allows you to delete all backups or a specific backup version for a data set. |
| HMI | DFHSM Migrate | schedules an HMIGRATE command to move a data set to ML1 or ML2 Additionally, you use this command to move a data set from ML1 to ML2. |
| HRC | DFHSM Recover | restores a data set from either the most current backup or a specific backup version The data set does not need to be cataloged for the recovery to occur. |
| I | Data Set Information | displays detailed data set information |
| UC | Uncatalog Data Set | removes the data set from the catalog This function is valid only for non-SMS data sets. |
| V | VTOC Dump | displays a formatted dump of the VTOC entry for the data set |
| VIN | Volume Information | displays volume-level information for the volume where the data set resides |
| Z | Compress | initiates a PDS-compression function for the data set |

VTOC Volume-Level Statistics View

The VTOC volume-level statistics view displays the volume-level statistics based on the criteria you entered.

| View Type | View Name | View Invocation |
|-----------|-----------|-----------------|
| tabular | WBVTOCV | WBVTOCV |

The following actions are available on the tabular view:

| Action | Description | Action Performed |
|--------|--------------------|--|
| L | List Data Sets | lists data set level statistics for the selected volume |
| VIN | Volume Information | displays volume-level information for the volume on which the data set resides |
| VST | Volume Statistics | displays volume-level statistics for the volume on which the data set resides |

Appendix A Copy/Merge Utility

This appendix describes the Copy/Merge utility that StorageGUARD provides that allows you to

- use historical space databases from previous versions of the product
- expand the historical space database to accommodate new functionality
- create a backup for the active historical space database
- reorganize the database if the historical space data collector encounters a name table overflow

The following information is included:

| | |
|------------------------------|-----|
| Overview | A-2 |
| Processing Options | A-2 |

Overview

The SGRDCOPYJ Copy/Merge utility can be tailored so that the time interval and the time step between snapshots become a subset of the input snapshots. This utility is particularly useful when you are creating a backup for the active historical space database (for example, you are requesting a calendar month or year information). This program must be used to reorganize the database if the historical space data collector encounters a name table overflow (message SGRD64E). Sample JCL is in the SGDCOPYJ member in *?prefix.BBSAMP*. Copy SGDCOPYJ to UBBSAMP before modifying for your site.

Note: This utility is also used to expand the historical space database to accommodate new functionality if you are upgrading from a release of the product before version 3.1. Expanded databases, after being updated with RAID and/or RVA information, cannot be used by previous releases of the product.

Warning! Do not use SGRDCOPYJ on empty or unused files, which can result in looping.

Processing Options

Processing options tell the StorageGUARD Copy/Merge utility the kind of processing that it should perform. The processing options must be specified through the PARM= job control parameter.

The following options and descriptions are available. Each option can be defined by using a keyword parameter. Keywords are listed in alphabetical order. Each parameter can be specified only once.

ACTION=COPY | BACKUP

This optional parameter defines the action that the Copy/Merge utility must take when the first defined extent fills during the writing of the output data set.

ACTION=COPY specifies that the Copy/Merge utility should behave just like the data collector. That is, the Copy/Merge utility should perform a wraparound when the first extent is full on the output data set, thus overwriting the oldest snapshot with the next one. This action ensures that the defined size for the output data set is used. Refer to the *MAINVIEW SRM Customization Guide* for a worksheet for calculating the database size.

ACTION=BACKUP is used when no wraparound should occur. In other words, the Copy/Merge utility allows secondary extents to be allocated when the first extent fills. This option is used when you do not want to calculate the exact size of the data set containing a given amount of information or when you do not want to lose space by allocating more size than absolutely necessary.

The default value is **COPY**.

Abbreviations: **Action=**

BEGIN=date of oldest snapshot to be copied

This optional parameter defines the date of the oldest snapshot that should be included in the output data set. Snapshots that were created earlier than the specified date are excluded from the copy operation.

The following formats are supported:

YY.DDD
YYYY.DDD
DD/MM/YY
DD-MM-YY
DD.MM.YY
DD/MM/YYYY
DD-MM-YYYY
DD.MM.YYYY

If this parameter is omitted, no filtering for the oldest record takes place.

Abbreviations: **BEGin=**

END=date of last snapshot to be copied

This optional parameter defines the date of the latest (most recent) snapshot that should be included in the output data set. Snapshots that were created after the specified date are excluded from the copy operation.

The following formats are supported:

YY.DDD
YYYY.DDD
DD/MM/YY
DD-MM-YY
DD.MM.YY
DD/MM/YYYY
DD-MM-YYYY
DD.MM.YYYY

If this parameter is omitted, no filtering for the most recent record takes place.

MAXACCNTCODES=number of account codes used

This optional parameter defines the number of different account codes that the output data set must accommodate. The value you enter must be between 325 and 65535.

The default value is 325.

Abbreviations: **MAXACCNTCODEs=**, **MAXACCTCODEs=**

MININTERVAL=minimum time interval between permanent snapshots in minutes

This optional parameter is used to determine the minimum time step in minutes between snapshots that are written to the output data set. This parameter is used only to exclude snapshots that are already present on the input, thus allowing the same data set size to cover a longer (although less detailed) history. In particular, **MININTERVAL** has meaning only when it defines a greater value than the time interval that is used on the input data set (very likely determined through the **WRITEINTERVAL** parameter on the data collector).

If you define a value that is not greater than the value in effect in the input data set, or if you omit this parameter, all complete snapshots are copied to the output data set.

The value you enter must be between 1 and 1440.

Abbreviations: **MININTerval=**, **MINNTVl=**, **INTERVal=**, **NTVL=**

SMFID=0 or SMF record number

This parameter tells the Copy/Merge utility which StorageGUARD SMF records to select when it reads SMF input. The same record number must be defined for this keyword as was defined earlier for the data collector. This parameter is required and is allowed only when reading SMF input.

Abbreviations: **SMFid=**

TYPE=VOLUME | POOL | ACCOUNT

This parameter tells the Copy/Merge utility the type of StorageGUARD records to be copied. This parameter must always be defined.
TYPE=ACCOUNT is valid only with StorageGUARD release 2.2 and above.

VERSION=1.1 | 2.1 | 2.2 | 2.3 | 2.4 | 2.5 | 3.1 | 4.1 | 5.1 | 6.1

This optional parameter tells the Copy/Merge utility which version of StorageGUARD input records should be copied (or converted). The output data set is always formatted according to the most recent version. The Copy/Merge utility verifies that the input records correspond to the version that is defined (or used by default). Record (format) conversion is performed as required when you define releases older than the current one.

The default value is the most recent version.

Abbreviations: **VERsion=**

Glossary

This glossary defines BMC Software terminology. Other dictionaries and glossaries may be used in conjunction with this glossary.

Since this glossary pertains to BMC Software-related products, some of the terms defined may not appear in this book.

To help you find the information you need, this glossary uses the following cross-references:

Contrast with indicates a term that has a contrary or contradictory meaning.

See indicates an entry that is a synonym or contains expanded information.

See also indicates an entry that contains related information.

| | |
|----------------------------|---|
| action | Defined operation, such as modifying a MAINVIEW window, that is performed in response to a command. <i>See</i> object. |
| active window | Any MAINVIEW window in which data can be refreshed. <i>See</i> alternate window, current window, window. |
| administrative view | Display from which a product's management tasks are performed, such as the DSLIST view for managing historical data sets. <i>See</i> view. |
| ALT WIN field | Input field that allows you to specify the window identifier for an alternate window where the results of a hyperlink are displayed. <i>See</i> alternate window. |
| Alternate Access | <i>See</i> MAINVIEW Alternate Access. |
| alternate form | View requested through the FORM command that changes the format of a previously displayed view to show related information. <i>See also</i> form, query. |
| alternate window | (1) Window that is specifically selected to display the results of a hyperlink. (2) Window whose identifier is defined to the ALT WIN field. <i>Contrast with</i> current window. <i>See</i> active window, window, ALT WIN field. |
| analyzer | (1) Online display that presents a snapshot of status and activity data and indicates problem areas. (2) Component of CMF MONITOR. <i>See</i> CMF MONITOR Analyzer. |

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| application | (1) Program that performs a specific set of tasks within a MAINVIEW product. (2) In MAINVIEW VistaPoint, combination of workloads to enable display of their transaction performance data in a single view. |
| application trace | <i>See trace.</i> |
| ASCH workload | Workload comprising Advanced Program-to-Program Communication (APPC) address spaces. |
| AutoCustomization | Online facility for customizing the installation of products. AutoCustomization provides an ISPF panel interface that both presents customization steps in sequence and provides current status information about the progress of the installation. |
| automatic screen update | Usage mode wherein the currently displayed screen is refreshed automatically with new data at an interval you specify. Invoked by the ASU command. |
| batch workload | Workload consisting of address spaces running batch jobs. |
| BBI | Basic architecture that distributes work between workstations and multiple OS/390 targets for BMC Software MAINVIEW products. |
| BBI-SS PAS | <i>See BBI subsystem product address space.</i> |
| BBI subsystem product address space (BBI-SS PAS) | OS/390 subsystem address space that manages communication between local and remote systems and that contains one or more of the following products: <ul style="list-style-type: none"> • MAINVIEW AutoOPERATOR • MAINVIEW for CICS • MAINVIEW for DB2 • MAINVIEW for DBCTL • MAINVIEW for IMS Online • MAINVIEW for MQSeries (formerly Command MQ for S/390) • MAINVIEW for VTAM • MAINVIEW VistaPoint (for CICS, DB2, DBCTL, and IMS workloads) |
| BBPARM | <i>See parameter library.</i> |
| BBPROC | <i>See procedure library.</i> |
| BBPROF | <i>See profile library.</i> |
| BBSAMP | <i>See sample library.</i> |
| BBV | <i>See MAINVIEW Alternate Access.</i> |

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| BBXS | BMC Software Subsystem Services. Common set of service routines loaded into common storage and used by several BMC Software MAINVIEW products. |
| border | Visual indication of the boundaries of a window. |
| bottleneck analysis | Process of determining which resources have insufficient capacity to provide acceptable service levels and that therefore can cause performance problems. |
| CA-Disk | Data management system by Computer Associates that replaced the DMS product. |
| CAS | Coordinating address space. One of the address spaces used by the MAINVIEW windows environment architecture. The CAS supplies common services and enables communication between linked systems. Each OS/390 image requires a separate CAS. Cross-system communication is established through the CAS using VTAM and XCF communication links. |
| CFMON | <i>See</i> coupling facility monitoring. |
| chart | Display format for graphical data. <i>See also</i> graph. |
| CICSplex | User-defined set of one or more CICS systems that are controlled and managed as a single functional entity. |
| CMF MONITOR | Comprehensive Management Facility MONITOR. Product that measures and reports on all critical system resources, such as CPU, channel, and device usage; memory, paging, and swapping activity; and workload performance. |
| CMF MONITOR Analyzer | Batch component of CMF MONITOR that reads the SMF user and 70 series records created by the CMF MONITOR Extractor and/or the RMF Extractor and formats them into printed system performance reports. |
| CMF MONITOR Extractor | Component of CMF that collects performance statistics for CMF MONITOR Analyzer, CMF MONITOR Online, MAINVIEW for OS/390, and RMF postprocessor. <i>See</i> CMF MONITOR Analyzer, CMF MONITOR Online, MAINVIEW for OS/390. |
| CMF MONITOR Online | Component of CMF that uses the MAINVIEW window interface to present data on all address spaces, their use of various system resources, and the delays that each address space incurs while waiting for access to these resources. <i>See</i> CMF MONITOR, MAINVIEW for OS/390. |
| CMF Type 79 API | Application programming interface, provided by CMF, that provides access to MAINVIEW SMF-type 79 records. |

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| CMFMON | <p>Component of CMF MONITOR that simplifies online retrieval of information about system hardware and application performance and creates MAINVIEW SMF-type 79 records.</p> <p>The CMFMON <i>online facility</i> can be used to view data in one or more formatted screens.</p> <p>The CMFMON <i>write facility</i> can be used to write collected data as MAINVIEW SMF-type 79 records to an SMF or sequential data set.</p> |
| CMRDETL | <p>MAINVIEW for CICS data set that stores detail transaction records (type 6E) and abend records (type 6D). Detail records are logged for each successful transaction. Abend records are written when an abend occurs. Both records have the same format when stored on CMRDETL.</p> |
| CMRSTAT | <p>MAINVIEW for CICS data set that stores both CICS operational statistic records, at 5-minute intervals, and other records, at intervals defined by parameters specified during customization (using CMRSOPT).</p> |
| column | <p>Vertical component of a view or display, typically containing fields of the same type of information, that varies by the objects associated in each row.</p> |
| collection interval | <p>Length of time data is collected. <i>See also</i> delta mode, total mode.</p> |
| command delimiter | <p>Special character, usually a ; (semicolon), used to stack commands typed concurrently on the COMMAND line for sequential execution.</p> |
| COMMAND line | <p>Line in the control area of the display screen where primary commands can be typed. <i>Contrast with</i> line command column.</p> |
| Command MQ Automation D/S | <p>Command MQ agents, which provide local proactive monitoring for both MQSeries and MSMQ (Microsoft message queue manager). The Command MQ agents operate at the local node level where they continue to perform functions regardless of the availability of the MQM (message queue manager) network. Functionality includes automatic monitoring and restarts of channels, queue managers, queues and command servers. In cases where automated recovery is not possible, the agents transport critical alert information to a central console.</p> |
| Command MQ Automation S/390 | <p>Command MQ component, which monitors the MQM (message queue manager) networks and intercedes to perform corrective actions when problems arise. Solutions include:</p> <ul style="list-style-type: none"> • Dead-Letter Queue management • System Queue Archival • Service Interval Performance solutions |

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- Channel Availability

These solutions help ensure immediate relief to some of the most pressing MQM operations and performance problems.

Command MQ for D/S

Command MQ for D/S utilizes a true client/server architecture and employs resident agents to provide configuration, administration, performance monitoring and operations management for the MQM (message queue manager) network.

Command MQ for S/390

See MAINVIEW for MQSeries.

COMMON STORAGE MONITOR

Component of MAINVIEW for OS/390 that monitors usage and reconfigures OS/390 common storage blocks.

composite workload Workload made up of a WLM workload or other workloads, which are called *constituent workloads*.

constituent workload

Member of a composite workload. Constituent workloads in a composite usually belong to a single workload class, but sometimes are mixed.

contention

Occurs when there are more requests for service than there are servers available.

context

In a Plex Manager view, field that contains the name of a target or group of targets specified with the CONTEXT command. *See* scope, service point, SSI context, target context.

CONTEXT command Specifies either a MAINVIEW product and a specific target for that product (*see* target context) or a MAINVIEW product and a name representing one or more targets (*see* SSI context) for that product.

control statement

(1) Statement that interrupts a sequence of instructions and transfers control to another part of the program. (2) Statement that names samplers and other parameters that configure the MAINVIEW components to perform specified functions. (3) In CMF MONITOR, statement in a parameter library member used to identify a sampler in the extractor or a report in the analyzer, or to describe either component's processing requirements to the operating system.

coupling facility monitoring (CFMON)

Coupling facility views that monitor the activity of your system's coupling facilities.

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| CPO | Customized Product Offering. Delivery and installation technique that allows any combination of BMC Software SMP/E-maintainable products to be distributed on a product tape to a customer and installed quickly. The CPO product tape contains libraries required for product customization and execution, plus SMP distribution libraries and data sets needed for application of SMP maintenance. |
| current data | Data that reflects the system in its current state. The two types of current data are realtime data and interval data. <i>Contrast with</i> historical data. <i>See also</i> interval data, realtime data. |
| current window | In the MAINVIEW window environment, window where the main dialog with the application takes place. The current window is used as the default window destination for commands issued on the COMMAND line when no window number is specified. <i>Contrast with</i> alternate window. <i>See</i> active window, window. |
| DASD | Direct Access Storage Device. (1) A device with rotating recording surfaces that provides immediate access to stored data. (2) Any device that responds to a DASD program. |
| DASD ADVISOR | An interactive software tool that diagnoses DASD performance problems and makes recommendations to reduce overall service time. This tool measures and reports on the operational performance of IBM and IBM-compatible devices. |
| data collector | Program that belongs to a MAINVIEW product and that collects data from various sources and stores the data in records used by views. For example, MAINVIEW for OS/390 data collectors obtain data from OS/390 services, OS/390 control blocks, CMF MONITOR Extractor control blocks, and other sources. <i>Contrast with</i> extractor. |
| delta mode | (1) In MAINVIEW for DB2 analyzer displays, difference between the value sampled at the start of the current statistics interval and the value sampled by the current analyzer request. <i>See also</i> statistics interval. (2) In CMFMON, usage mode wherein certain columns of data reflect the difference in values between one sample cycle and the next. Invoked by the DELta ON command. <i>See also</i> collection interval, sample cycle, total mode. |
| DFSMS | (Data Facility Storage Management System) Data management, backup, and HSM software from IBM for OS/390 mainframes. |
| DMR | <i>See</i> MAINVIEW for DB2. |
| DMS | (Data Management System) <i>See</i> CA-Disk. |
| DMS2HSM | Component of MAINVIEW SRM that facilitates the conversion of CA-Disk, formerly known as DMS, to HSM. |

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| DSO | Data Set Optimizer. CMF MONITOR Extractor component that uses CMF MONITOR Extractor data to produce reports specifying the optimal ordering of data sets on moveable head devices. |
| EasyHSM | Component of MAINVIEW SRM that provides online monitoring and reporting to help storage managers use DFHSM efficiently. |
| EasyPOOL | Component of MAINVIEW SRM that provides control over data set allocation and enforcement of allocation and naming standards. EasyPOOL functions operate at the operating system level to intercept normal job processing, thus providing services without any JCL changes. |
| EasySMS | Component of MAINVIEW SRM that provides tools that aid in the conversion to DFSMS and provides enhancement to the DFSMS environment after implementation. EasySMS consists of the EasyACS functions, the SMSACSTE function, and the Monitoring and Positioning Facility. |
| element | (1) Data component of a data collector record, shown in a view as a field. (2) Internal value of a field in a view, used in product functions. |
| element help | Online help for a field in a view. The preferred term is <i>field help</i> . |
| Enterprise Storage Automation | Component of MAINVIEW SRM that integrates powerful event management technology and storage monitoring technology to provide significant storage automation capabilities and solutions. Storage occurrences are defined to generate events in the form of messages that provide an early warning system for storage problems and are routed to MAINVIEW AutoOPERATOR to be viewed. |
| Event Collector | Component for MAINVIEW for IMS Online, MAINVIEW for IMS Offline, and MAINVIEW for DBCTL that collects data about events in the IMS environment. This data is required for Workload Monitor and optional for Workload Analyzer (except for the workload trace service). This data also is recorded as transaction records (X'FA') and program records (X'F9') on the IMS system log for later use by the MAINVIEW for IMS Offline components: Performance Reporter and Transaction Accountant. |
| expand | Predefined link from one display to a related display. <i>See also</i> hyperlink. |
| extractor | Program that collects data from various sources and keeps the data control blocks to be written as records. Extractors obtain data from services, control blocks, and other sources. <i>Contrast with</i> data collector. |
| extractor interval | <i>See</i> collection interval. |

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| fast path | Predefined link between one screen and another. To use the fast path, place the cursor on a single value in a field and press Enter. The resulting screen displays more detailed information about the selected value. <i>See also</i> hyperlink. |
| field | Group of character positions within a screen or report used to type or display specific information. |
| field help | Online help describing the purpose or contents of a field on a screen. To display field help, place the cursor anywhere in a field and press PF1 (HELP). In some products, field help is accessible from the screen help that is displayed when you press PF1. |
| filter | Selection criteria used to limit the number of rows displayed in a view. Data that does not meet the selection criteria is not displayed. A filter is composed of an element, an operator, and an operand (a number or character string). Filters can be implemented in view customization, through the PARM/QPARM commands, or through the Where/QWhere commands. Filters are established against elements of data. |
| fixed field | Field that remains stationary at the left margin of a screen that is scrolled either right or left. |
| FOCAL POINT | MAINVIEW product that displays a summary of key performance indicators across systems, sites, and applications from a single terminal. |
| form | One of two constituent parts of a view; the other is query. A form defines how the data is presented; a query identifies the data required for the view. <i>See also</i> query, view. |
| full-screen mode | Display of a MAINVIEW product application or service on the entire screen. There is no window information line. <i>Contrast with</i> windows mode. |
| global command | Any MAINVIEW window interface command that can affect all windows in the window area of a MAINVIEW display. |
| graph | Graphical display of data that you select from a MAINVIEW window environment view. <i>See also</i> chart. |
| hilevel | For MAINVIEW products, high-level data set qualifier required by a site's naming conventions. |
| historical data | (1) Data that reflects the system as it existed at the end of a past recording interval or the duration of several intervals. (2) Any data stored in the historical database and retrieved using the TIME command. <i>Contrast with</i> current data, interval data and realtime data. |

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| historical database | Collection of performance data written at the end of each installation-defined recording interval and containing up to 100 VSAM clusters. Data is extracted from the historical database with the TIME command. <i>See</i> historical data. |
| historical data set | In MAINVIEW products that display historical data, VSAM cluster file in which data is recorded at regular intervals. |
| HSM | (Hierarchical Storage Management) Automatic movement of files from hard disk to slower, less-expensive storage media. The typical hierarchy is from magnetic disk to optical disk to tape. |
| hyperlink | <p>(1) Preset field in a view or an EXPAND line on a display that permits you to</p> <ul style="list-style-type: none"> • Access cursor-sensitive help • Issue commands • Link to another view or display <p>The transfer can be either within a single product or to a related display/view in a different MAINVIEW product. Generally, hyperlinked fields are highlighted. (2) Cursor-activated short path from a topic or term in online help to related information. <i>See also</i> fast path.</p> |
| Image log | <p>Collection of screen-display records. Image logs may be created for both the BBI-SS PAS and the BBI terminal session (TS).</p> <p>The BBI-SS PAS Image log consists of two data sets that are used alternately: as one fills up, the other is used. Logging to the BBI-SS PAS Image log stops when both data sets are filled and the first data set is not processed by the archive program.</p> <p>The TS Image log is a single data set that wraps around when full.</p> |
| IMSPlex System Manager (IPSM) | MVIMS Online and MVDBC service that provides Single System Image views of resources and bottlenecks for applications across one or more IMS regions and systems. |
| interval data | <p>Cumulative data collected during a collection interval. Intervals usually last from 15 to 30 minutes depending on how the recording interval is specified during product customization. <i>Contrast with</i> historical data.</p> <p>Note: If change is made to the workloads, a new interval will be started.</p> <p><i>See also</i> current data and realtime data.</p> |
| InTune | Product for improving application program performance. It monitors the program and provides information used to reduce bottlenecks and delays. |

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| IRUF | <p>IMS Resource Utilization File (IRUF). IRUFs can be either detailed (one event, one record) or summarized (more than one event, one record). A detailed IRUF is created by processing the IMS system log through a program called IMFLEDIT. A summarized IRUF is created by processing one or more detailed IRUFs, one or more summarized IRUFs, or a combination of both, through a sort program and the TASCOSTR program.</p> |
| job activity view | Report about address space consumption of resources. <i>See</i> view. |
| journal | Special-purpose data set that stores the chronological records of operator and system actions. |
| Journal log | <p>Collection of messages. Journal logs are created for both the BBI-SS PAS and the BBI terminal session (TS).</p> <p>The BBI-SS PAS Journal log consists of two data sets that are used alternately: as one fills up, the other is used. Logging to the BBI-SS PAS Journal log stops when both data sets are filled and the first data set is not being processed by the archive program.</p> <p>The TS Journal log is a single data set that wraps around when full.</p> |
| line command | Command that you type in the line command column in a view or display. Line commands initiate actions that apply to the data displayed in that particular row. |
| line command column | Command input column on the left side of a view or display. <i>Contrast with</i> COMMAND line. |
| Log Edit | In the MAINVIEW for IMS Offline program named IMFLEDIT, function that extracts transaction (X'FA') and program (X'F9') records from the IMS system log. IMFLEDIT also extracts certain records that were recorded on the system log by IMS. IMFLEDIT then formats the records into a file called the IMS Resource Utilization File (IRUF). |
| MAINVIEW | BMC Software integrated systems management architecture. |
| MAINVIEW Alarm Manager (MV ALARM) | In conjunction with other MAINVIEW products, notifies you when an exception occurs. MAINVIEW Alarm Manager is capable of monitoring multiple systems simultaneously, which means that MAINVIEW Alarm Manager installed on one system keeps track of your entire SYSPLEX. You can then display a single view that shows exceptions for all MAINVIEW performance monitors within your OS/390 enterprise. |

MAINVIEW Alternate Access

Enables MAINVIEW products to be used without TSO by providing access through EXCP and VTAM interfaces.

MAINVIEW AutoOPERATOR

Product that uses tools, techniques, and facilities to automate routine operator tasks and provide online performance monitoring, and that achieves high availability through error minimization, improved productivity, and problem prediction and prevention.

MAINVIEW control area

In the MAINVIEW window environment, first three lines at the top of the view containing the window information line and the COMMAND, SCROLL, CURR WIN, and ALT WIN lines. The control area cannot be customized and is part of the information display. *Contrast with* MAINVIEW display area, MAINVIEW window area.

MAINVIEW Desktop Version of the MAINVIEW window interface designed to run on OS/2 and Windows workstations.

MAINVIEW display area

See MAINVIEW window area.

MAINVIEW Explorer Product that provides access to MAINVIEW products from a Web browser running under Windows. MAINVIEW Explorer replaces MAINVIEW Desktop.

MAINVIEW for CICS Product (formerly MV MANAGER for CICS) that provides realtime application performance analysis and monitoring for CICS system management.

MAINVIEW for DB2 Product (formerly MV MANAGER for DB2) that provides realtime and historical application performance analysis and monitoring for DB2 subsystem management.

MAINVIEW for DBCTL (MVDBC)

Product that provides realtime application performance analysis and monitoring for DBCTL management.

MAINVIEW for IMS (MVIMS) Offline

Product with a Performance Reporter component that organizes data and prints reports used to analyze IMS performance and a Transaction Accountant component that produces cost accounting and user charge-back records and reports.

MAINVIEW for IMS (MVIMS) Online

Product that provides realtime application performance analysis and monitoring for IMS management.

MAINVIEW for IP Product that monitors OS/390 mission-critical application performance as it relates to IP stack usage. Collected data includes: connections, response time statistics, application availability, application throughput, and IP configuration.

MAINVIEW for MQSeries (formerly known as Command MQ for S/390)

Delivers comprehensive capabilities for configuration, administration, performance monitoring and operations management for an entire MQM (message queue manager) network.

MAINVIEW for OS/390

System management application (formerly MAINVIEW for MVS (prior to version 2.5)). Built upon the MAINVIEW window environment architecture, it uses the window interface to provide access to system performance data and other functions necessary in the overall management of an enterprise.

MAINVIEW for UNIX System Services

System management application that allows you to monitor the performance of the Unix System Services from a MAINVIEW window interface.

MAINVIEW for VTAM

Product that displays application performance data by application, transaction ID, and LU name. This collected data includes connections, response time statistics, application availability, and application throughput.

MAINVIEW Selection Menu

ISPF selection panel that provides access to all MAINVIEW windows-mode and full-screen mode products.

MAINVIEW Storage Resource Monitor (SRM)

Suite of products that assist in all phases of OS/390 storage management. MAINVIEW SRM consists of components that perform automation, reporting, trend analysis, and error correction for storage management in OS/390.

MAINVIEW SYSPROG Services

See SYSPROG services.

MAINVIEW VistaPoint

Product that provides enterprise-wide views of performance. Application and workload views are available for CICS, DB2, DBCTL, IMS, and OS/390. Data is summarized at the level of detail needed; e.g., reports may be for a single target, an OS/390 image, or an entire enterprise.

MAINVIEW window area

Portion of the information display that is not the control area and in which views are displayed and windows opened. It includes all but the first three lines of the information display. *Contrast with* MAINVIEW control area.

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| monitor | Online service that measures resources or workloads at user-defined intervals and issues warnings when user-defined thresholds are exceeded. |
| MV MANAGER for CICS | <i>See</i> MAINVIEW for CICS. |
| MV MANAGER for DB2 | <i>See</i> MAINVIEW for DB2. |
| MV MANAGER for MVS | <i>See</i> MAINVIEW for OS/390. |
| MVALARM | <i>See</i> MAINVIEW Alarm Manager. |
| MVCICS | <i>See</i> MAINVIEW for CICS. |
| MVDB2 | <i>See</i> MAINVIEW for DB2. |
| MVDBC | <i>See</i> MAINVIEW for DBCTL. |
| MVIMS | <i>See</i> MAINVIEW for IMS. |
| MVMQ | <i>See</i> MAINVIEW for MQSeries. |
| MVMVS | <i>See</i> MAINVIEW for OS/390. |
| MVSRM | <i>See</i> MAINVIEW Storage Resource Manager (SRM). |
| MVSRMHSM | <i>See</i> EasyHSM. |
| MVSRMSGC | <i>See</i> SG-Control. |
| MVSRMSGD | <i>See</i> StorageGUARD. |
| MVSRMSGP | <i>See</i> StorageGUARD. |
| MVUSS | <i>See</i> MAINVIEW for UNIX System Services. |
| MVScope | MAINVIEW for OS/390 application that traces both CPU usage down to the CSECT level and I/O usage down to the channel program level. |
| MVVP | <i>See</i> MAINVIEW VistaPoint. |
| MVVTAM | <i>See</i> MAINVIEW for VTAM. |
| MVWEB | <i>See</i> MAINVIEW for WebSphere. |

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| nested help | Multiple layers of help pop-up windows. Each successive layer is accessed by hyperlinking from the previous layer. |
| object | <p>Anything you can manipulate as a single unit. MAINVIEW objects can be any of the following: product, secondary window, view, row, column, or field.</p> <p>You can issue an action against an object by issuing a line command in the line command column to the left of the object. <i>See</i> action.</p> |
| OMVS workload | Workload consisting of OS/390 OpenEdition address spaces. |
| online help | Help information that is accessible online. |
| OS/390 and z/OS Installer | BMC Software common installation system for mainframe products. |
| OS/390 product address space (PAS) | Address space containing OS/390 data collectors, including the CMF MONITOR Extractor. Used by MAINVIEW for OS/390, MAINVIEW for USS, and CMF MONITOR products. <i>See</i> PAS. |
| parameter library | <p>Data set comprised of members containing parameters for specific MAINVIEW products or a support component. There can be several versions:</p> <ul style="list-style-type: none"> • The distributed parameter library, called BBPARM • A site-specific parameter library or libraries <p>These can be</p> <ul style="list-style-type: none"> -A library created by AutoCustomization, called UBBPARM -A library created manually, with a unique name |
| PAS | Product address space. Used by the MAINVIEW products. Contains data collectors and other product functions. <i>See</i> OS/390 product address space (PAS), BBI subsystem product address space (BBI-SS PAS). |
| performance group workload | MVS/SP-defined collection of address spaces. <i>See</i> service class workload, workload definition. |
| PERFORMANCE MANAGER | MAINVIEW for CICS online service for monitoring and managing current performance of CICS regions. |

Performance Reporter (MVIMS)

MVIMS Offline component that organizes data and prints reports that can be used to analyze IMS performance.

Performance Reporter

Product component that generates offline batch reports. The following products can generate these reports:

- MAINVIEW for DB2
- MAINVIEW for CICS

Plex Manager

Product through which cross-system communication, MAINVIEW security, and an SSI context are established and controlled. Plex Manager is shipped with MAINVIEW window environment products as part of the coordinating address space (CAS) and is accessible as a menu option from the MAINVIEW Selection Menu.

pop-up window

Window containing help information that, when active, overlays part of the window area. A pop-up panel is displayed when you issue the HELP command.

PRGP workload

In MVS/SP 5.0 or earlier, or in compatibility mode in MVS/SP 5.1 or later, composite of service classes. MAINVIEW for OS/390 creates a performance group workload for each performance group defined in the current IEAIPSxx member.

procedure library

Data set comprised of members containing executable procedures used by MAINVIEW AutoOPERATOR. These procedures are execute command lists (EXECs) that automate site functions. There can be several versions:

- The distributed parameter library, called BBPROC
- A site-specific parameter library or libraries

These can be

-A library created by AutoCustomization, called UBBPROC

-A library created manually, with a unique name

The site-created EXECs can be either user-written or customized MAINVIEW AutoOPERATOR-supplied EXECs from BBPROC.

product address space

See PAS.

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| profile library | <p>Data set comprised of members containing profile information and cycle refresh definitions for a terminal session connected to a BBI-SS PAS. Other members are dynamically created by MAINVIEW applications. There can be several versions:</p> <ul style="list-style-type: none"> • The distributed profile library, called BBPROF • A site-specific profile library or libraries <p>These can be</p> <ul style="list-style-type: none"> -A library created by AutoCustomization, called SBBPROF -A library created manually, with a unique name <p>The site library is a common profile shared by all site users. The terminal session CLIST creates a user profile automatically if one does not exist; it is called userid.BBPROF, where userid is your logon ID. User profile libraries allow each user to specify unique PF keys, CYCLE commands, target system defaults, a Primary Option Menu, and a unique set of application profiles.</p> |
| query | <p>One of two constituent parts of a view; the other is form. A query defines the data for a view; a form defines the display format. <i>See also</i> form, view.</p> |
| realtime data | <p>Performance data as it exists at the moment of inquiry. Realtime data is recorded during the smallest unit of time for data collection. <i>Contrast with</i> historical data. <i>See also</i> current data and interval data.</p> |
| Resource Analyzer | <p>Online realtime displays used to analyze IMS resources and determine which are affected by specific workload problems.</p> |
| Resource Monitor | <p>Online data collection services used to monitor IMS resources and issue warnings when defined utilization thresholds are exceeded.</p> |
| row | <p>(1) Horizontal component of a view or display comprising all the fields pertaining to a single device, address space, user, etc. (2) Horizontal component of a DB2 table consisting of a sequence of values, one for each column of the table.</p> |
| RxD2 | <p>Product that provides access to DB2 from REXX. It provides tools to query the DB2 catalog, issue dynamic SQL, test DB2 applications, analyze EXPLAIN data, generate DDL or DB2 utility JCL, edit DB2 table spaces, perform security administration, and much more.</p> |
| sample cycle | <p>Time between data samples.</p> <p>For the CMF MONITOR Extractor, this is the time specified in the extractor control statements (usually 1 to 5 seconds).</p> |

For realtime data, the cycle is not fixed. Data is sampled each time you press Enter.

sample library

Data set comprised of members each of which contains one of the following:

- Sample JCL that can be edited to perform specific functions
- A macro that is referenced in the assembly of user-written services
- A sample user exit routine

There can be several versions:

- The distributed sample library, called BBSAMP
- A site-specific sample library or libraries

These can be

-A library created by AutoCustomization, called UBBSAMP

-A library created manually, with a unique name

sampler

Program that monitors a specific aspect of system performance. Includes utilization thresholds used by the Exception Monitor. The CMF MONITOR Extractor contains samplers.

SBBPROF

See profile library.

scope

Subset of an SSI context. The scope could be all the data for the context or a subset of data within the context. It is user- or site-defined. *See* SSI context, target.

screen definition

Configuration of one or more views that have been stored with the SAVEScr command and assigned a unique name. A screen includes the layout of the windows and the view, context, system, and product active in each window.

selection view

In MAINVIEW products, view displaying a list of available views.

service class workload

OS/390- or MAINVIEW for OS/390-defined collection of address spaces.

If you are running MVS Workload Manager (WLM) in goal mode, MAINVIEW for OS/390 creates a service class workload for each service class that you define through WLM definition dialogs.

If you are running MVS 4.3 or earlier, or MVS/SP 5.1 or later with WLM in compatibility mode, OS/390 creates a performance group workload instead of a service class. *See* performance group workload.

| | |
|------------------------------------|--|
| service objective | Workload performance goal, specified in terms of response time for TSO workloads or turnaround time for batch workloads. Performance group workloads can be measured by either objective. Composite workload service objectives consist of user-defined weighting factors assigned to each constituent workload. There are no OS/390-related measures of service for started task workloads. |
| service point | <p>Specification, to MAINVIEW, of the services required to enable a specific product. Services may be actions, selectors, or views. Each target (e.g., CICS, DB2, or IMS) has its own service point.</p> <p>The PLEX view lists all the defined service points known to the CAS to which the terminal session is connected.</p> |
| service request block (SRB) | Control block that represents a routine to be dispatched. SRB mode routines generally perform work for the operating system at a high priority. An SRB is similar to a task control block (TCB) in that it identifies a unit of work to the system. <i>See also</i> task control block. |
| service select code | Code entered to invoke analyzers, monitors, and general services. This code is also the name of the individual service. |
| session | Total period of time an address space has been active. A session begins when monitoring can be performed. If the product address space (PAS) starts after the job, the session starts with the PAS. |
| SG-Auto | Component of MAINVIEW SRM that provides early warning notification of storage anomalies and automated responses to those anomalies based on conditions in the storage subsystem. |
| SG-Control | Component of MAINVIEW SRM that provides real-time monitoring, budgeting, and control of DASD space utilization. |
| single system image (SSI) | Feature of the MAINVIEW window environment architecture that allows you to view and perform actions on multiple OS/390 systems as though they were a single system. The rows of a single tabular view can contain rows from different OS/390 images. |
| SRB | <i>See</i> service request block. |
| SSI | <i>See</i> single system image. |
| SSI context | Name created to represent one or more targets for a given product. <i>See</i> context, target. |

started task workload

Address spaces running jobs that were initiated programmatically.

statistics interval

For MAINVIEW for DB2, cumulative count within a predefined interval (30-minute default set by the DB2STATS parameter in the distributed BBPARM member BBIISP00) for an analyzer service DELTA or RATE display. Specifying the DELTA parameter displays the current value as the difference between the value sampled by the current analyzer request and the value sampled at the start of the current interval. Specifying the RATE parameter displays the current value by minute (DELTA divided by the number of elapsed minutes).

StopX37/II

Component of MAINVIEW SRM that provides enhancements to OS/390 space management, reducing the incidence of space-related processing problems. The StopX37/II functions operate at the system level to intercept abend conditions or standards violations, thus providing services without any JCL changes.

StorageGUARD

Component of MAINVIEW SRM that monitors and reports on DASD consumption and provides historical views to help control current and future DASD usage.

summary view

View created from a tabular view using the Summarize option in view customization. A summary view compresses several rows of data into a single row based on the summarize criteria.

SYSPROG services

Component of MAINVIEW for OS/390. Over 100 services that detect, diagnose, and correct OS/390 system problems as they occur. Accessible from the OS/390 Performance and Control Main Menu. Note that this is also available as a stand-alone product MAINVIEW SYSPROG Services.

system resource

See object.

target

Entity monitored by one or more MAINVIEW products, such as an OS/390 image, IMS or DB2 subsystem, CICS region, or related workloads across systems. *See* context, scope, SSI context.

target context

Single target/product combination. *See* context.

TASCOSTR

MAINVIEW for IMS Offline program that summarizes detail and summary IMS Resource Utilization Files (IRUFs) to be used as input to the offline components.

task control block (TCB)

Address space-specific control block that represents a unit of work that is dispatched in the address space in which it was created. *See also* service request block.

| | |
|-----------------------------------|---|
| TCB | <i>See</i> task control block. |
| terminal session (TS) | Single point of control for MAINVIEW products, allowing data manipulation and data display and providing other terminal user services for MAINVIEW products. The terminal session runs in a user address space (either a TSO address space or a standalone address space for EXCP/VTAM access). |
| TDIR | <i>See</i> trace log directory. |
| threshold | Specified value used to determine whether the data in a field meets specific criteria. |
| TLDS | <i>See</i> trace log data set. |
| total mode | Usage mode in CMFMON wherein certain columns of data reflect the cumulative value between collection intervals. Invoked by the DELta OFF command. <i>See also</i> collection interval, delta mode. |
| trace | (1) Record of a series of events chronologically listed as they occur. (2) Online data collection and display services that track transaction activity through DB2, IMS, or CICS. |
| trace log data set (TLDS) | Single or multiple external VSAM data sets containing summary or detail trace data for later viewing or printing. The trace log(s) can be defined as needed or dynamically allocated by the BBI-SS PAS. Each trace request is assigned its own trace log data set(s). |
| trace log directory (TDIR) | VSAM linear data set containing one entry for each trace log data set. Each entry indicates the date and time of data set creation, the current status of the data set, the trace target, and other related information. |
| transaction | Specific set of input data that initiates a predefined process or job. |
| Transaction Accountant | MVIMS Offline component that produces cost accounting and user charge-back records and reports. |
| TS | <i>See</i> terminal session. |
| TSO workload | Workload that consists of address spaces running TSO sessions. |
| UAS | <i>See</i> user address space. |
| UBBPARM | <i>See</i> parameter library. |

| | |
|--------------------------------|---|
| UBBPROC | <i>See</i> procedure library. |
| UBBSAMP | <i>See</i> sample library. |
| user address space | Runs a MAINVIEW terminal session (TS) in TSO, VTAM, or EXCP mode. |
| User BBPROF | <i>See</i> profile library. |
| view | Formatted data within a MAINVIEW window, acquired from a product as a result of a view command or action. A view consists of two parts: query and form. <i>See also</i> form, job activity view, query. |
| view definition | Meaning of data that appears online, including source of data, selection criteria for data field inclusion and placement, data format, summarization, context, product, view name, hyperlink fields, and threshold conditions. |
| view command | Name of a view that you type on the COMMAND line to display that view. |
| view command stack | Internal stack of up to 10 queries. For each command, the stack contains the filter parameters, sort order, context, product, and timeframe that accompany the view. |
| view help | Online help describing the purpose of a view. To display view help, place the cursor on the view name on the window information line and press PF1 (HELP). |
| window | Area of the MAINVIEW screen in which views and resources are presented. A window has visible boundaries and can be smaller than or equal in size to the MAINVIEW window area. <i>See</i> active window, alternate window, current window, MAINVIEW window area. |
| window information line | Top border of a window. Shows the window identifier, the name of the view displayed in the window, the system, the scope, the product reflected by the window, and the timeframe for which the data in the window is relevant. <i>See also</i> window status field. |
| window number | Sequential number assigned by MAINVIEW to each window when it is opened. The window number is the second character in the window status field. <i>See also</i> window status field. |
| window status | One-character letter in the window status field that indicates when a window is ready to receive commands, is busy processing commands, is not to be updated, or contains no data. It also indicates when an error has occurred in a window. The window status is the first character in the window status field. <i>See also</i> window information line, window status field. |

| | |
|-------------------------------------|---|
| window status field | Field on the window information line that shows the current status and assigned number of the window. <i>See also</i> window number, window status. |
| windows mode | Display of one or more MAINVIEW product views on a screen that can be divided into a maximum of 20 windows. A window information line defines the top border of each window. <i>Contrast with</i> full-screen mode. |
| WLM workload | In goal mode in MVS/SP 5.1 and later, a composite of service classes. MAINVIEW for OS/390 creates a workload for each WLM workload defined in the active service policy. |
| workflow | Measure of system activity that indicates how efficiently system resources are serving the jobs in a workload. |
| workload | (1) Systematic grouping of units of work (e.g., address spaces, CICS transactions, IMS transactions) according to classification criteria established by a system administrator. (2) In OS/390, group of service classes within a service definition. |
| workload activity view | Tracks workload activity as the workload accesses system resources. A workload activity view measures workload activity in terms of resource consumption and how well the workload activity meets its service objectives. |
| Workload Analyzer | Online data collection and display services used to analyze IMS workloads and determine problem causes. |
| workload definition | Workload created through the WKLIST view. Contains a unique name, a description, an initial status, a current status, and selection criteria by which address spaces are selected for inclusion in the workload. <i>See</i> Workload Definition Facility. |
| Workload Definition Facility | In MAINVIEW for OS/390, WKLIST view and its associated dialogs through which workloads are defined and service objectives set. |
| workload delay view | Tracks workload performance as the workload accesses system resources. A workload delay view measures any delay a workload experiences as it contends for those resources. |
| Workload Monitor | Online data collection services used to monitor IMS workloads and issue warnings when defined thresholds are exceeded. |
| workload objectives | Performance goals for a workload, defined in WKLIST. Objectives may include measures of performance such as response times and batch turnaround times. |

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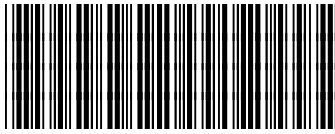
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